

PROCESSING AND PROPERTY INDEX

137 AND 140 EDITIONS

2

ca

The heat of dissociation of the molecule O_2 and Sutherland's constant for oxygen. S. BUNZELER AND V. KONDRATIEV. *Nature* 125, 104-5(1930)---The mutual energy of two moles, at the moment of collision or heat of dissociation, D , is Sutherland's constant, C , which det. the dependence of the effective area of the mol. on the temp. The values of D and C together are known only for oxygen. It is assumed that O_2 moles are assoc. into O_4 and that the dissociation energy of O_4 does not differ greatly in the liquid and gaseous states. A review of work on O_2 is given. H. W. WALKER

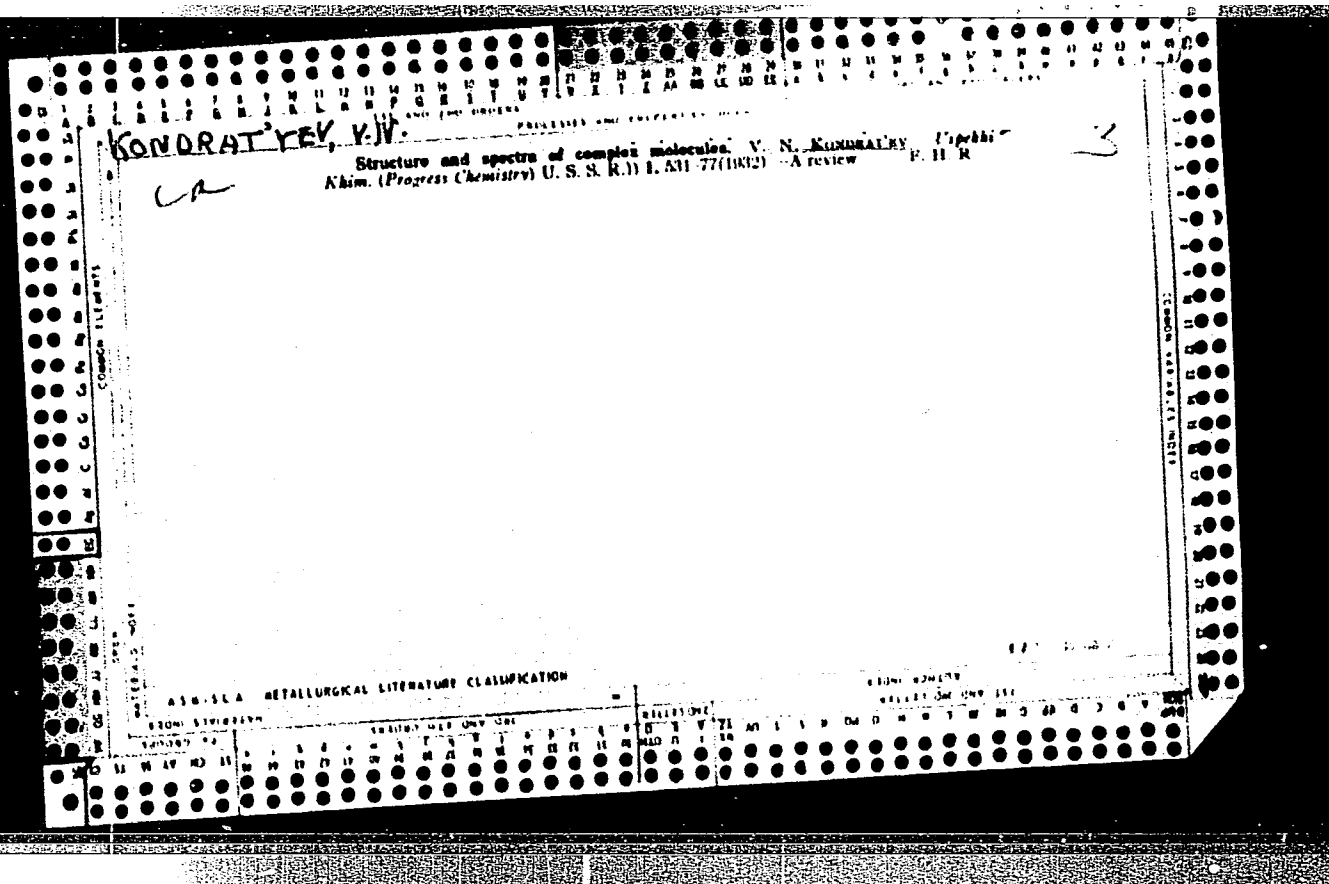
ASME 5.4 METALLURGICAL LITERATURE CLASSIFICATION

137 AND 140 EDITIONS

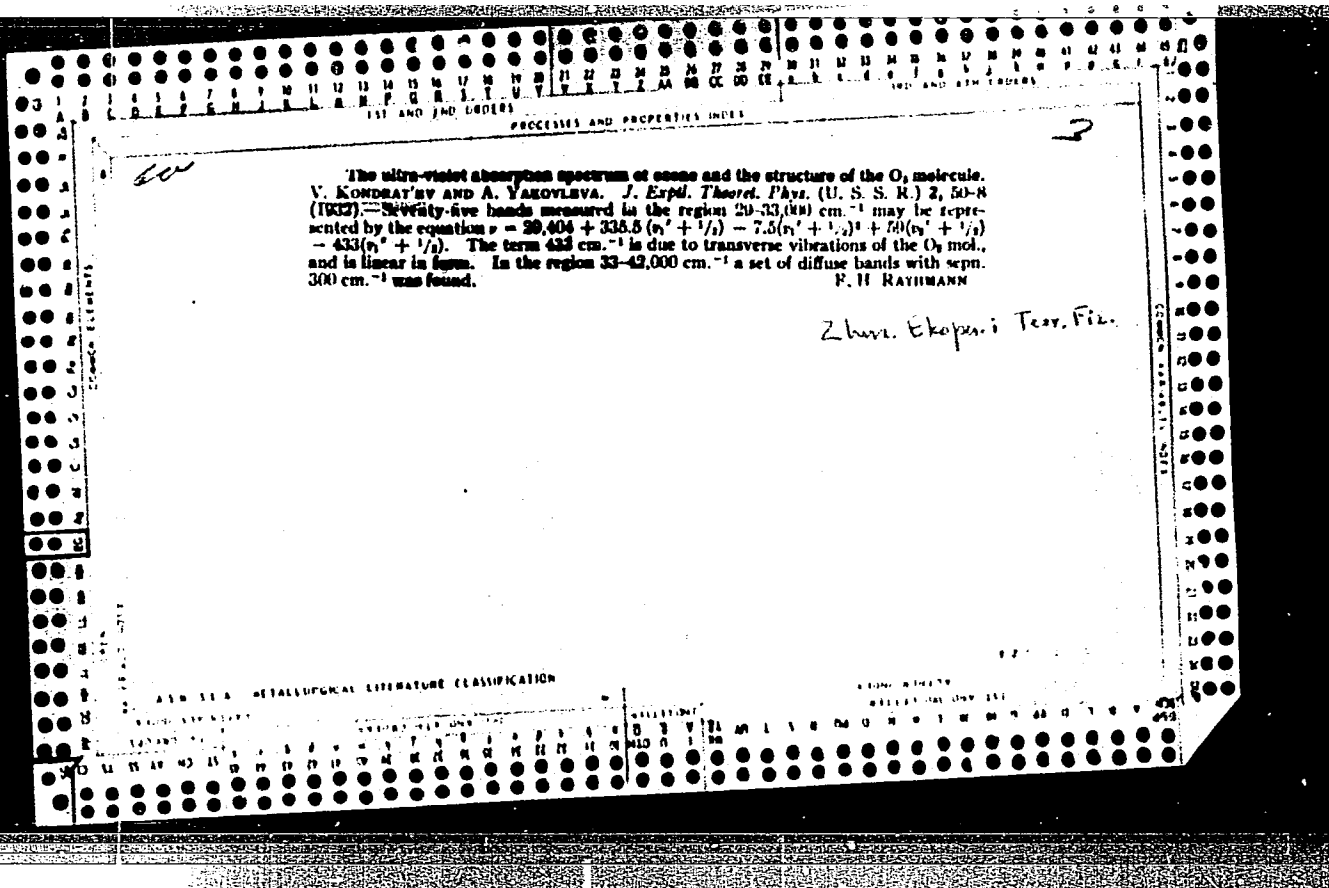
137 AND 140 EDITIONS

The radiation of light during the formation of molecules from atoms. V. KON-
 RAT'EV. *Physik. Z. Sowjetunion*, 1, 601-19 (1932).—The relative probability that a mol-
 ecule synthesized from atoms will be stabilized by emission of radiant energy rather than by
 three-body collisions is discussed. Only at low pressures and high temps. does stabiliza-
 tion by radiation become more probable than stabilization by three-body collisions.
 P. H. EMMETT

Zhur. Fiz.



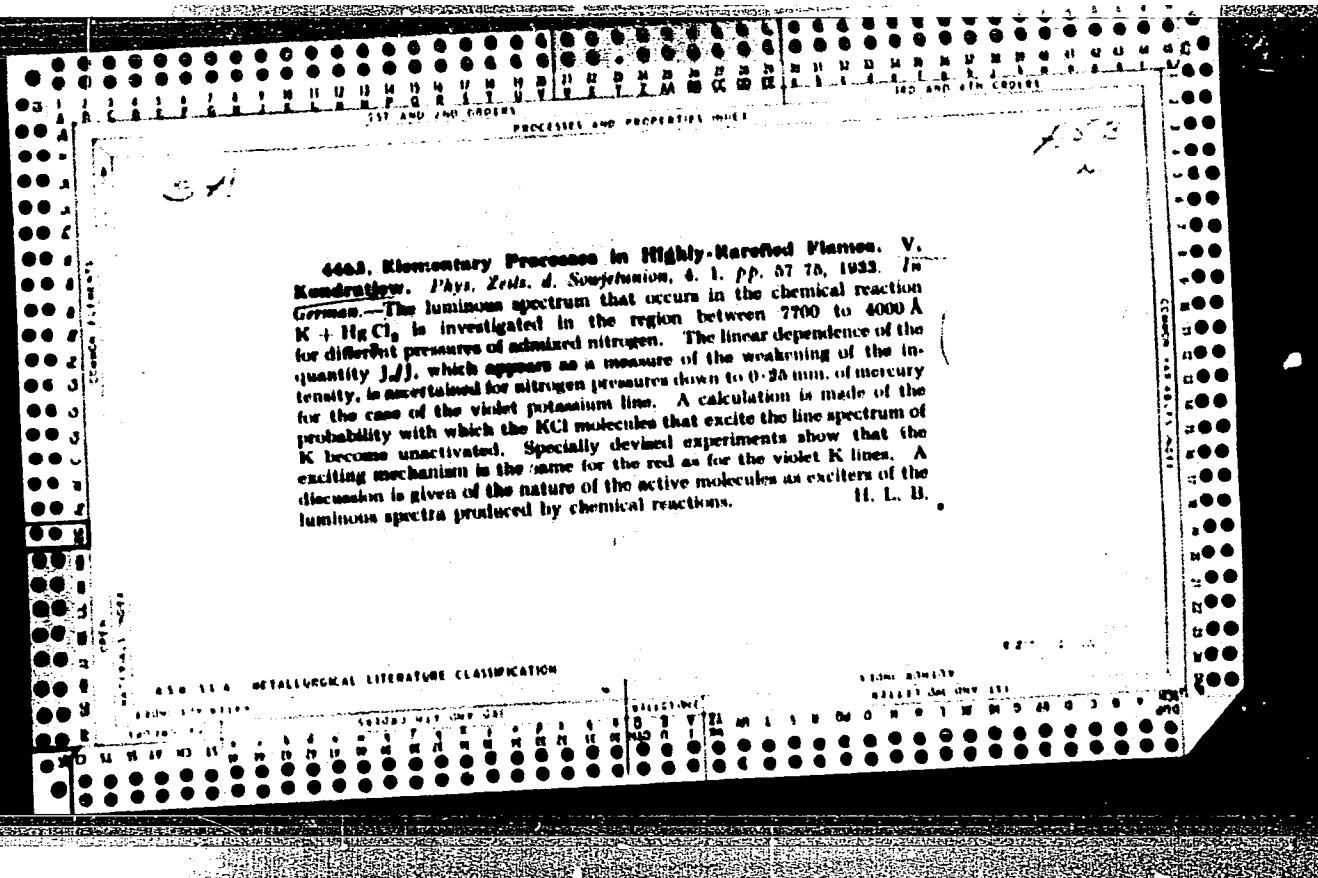
1ST AND 2ND QUARTERS																									
PROCESSES AND PREPAREDNESS INDEX													Z. L. H. F. L.												
<p><i>CA</i></p> <p>Spectroscopic detection of monomolecular layers of adsorbed gases. S. GOLUB AND V. KONDRATYEV. <i>Physik. Z. Sowjetunion</i> 1, 619-20 (1952).--The changes that take place within molecules of different kinds adsorbed on different surfaces and the absorption spectra of adsorbed molecules are discussed. A comparison of the spectra of gaseous and adsorbed NO_2 shows neither a shift nor a widening of the bands but does show intensity differences indicative of the formation of a monomol. film. The similarity of the spectra is explained by the failure of a neutral adsorbent such as glass to effect any noticeable change in the energy levels of the mol. The absorption spectrum of NO_2 dissolved in benzene compared with that of the gas shows no shift but some broadening of the bands. These effects are explained and others predicted from a study of the potential energy curve of the mol. Absorption spectra of Na and K were similarly made but no adsorbed film could be formed. This investigation will be extended to adsorbed gases on sputtered metal films.</p> <p>HOWARD AGNEW SMITH</p>																									
<p>ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									



KONDRAT'YEV, V.N.																									
PROCESSING AND PROPERTY NOTES													TEST AND EVALUATION												
<p>Present physical methods of study of the structure of molecules. V. N. Kondrat'ev. <i>Trans. V.I. Mendeleev Congr. Theoret. Applied Chem.</i> 1932, 2, Pt. 1, 161-71 (1935).—A review of the optical and electronic methods used at present. R. R. Stefanowsky</p>													<p>γ</p>												
<p>ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
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1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
KONDRATYEV, V.N.																										PROCESSES AND PROPERTIES INDEX																									
<p>CP</p> <p>The extinction of atom fluorescence. B. KIZILBASI, V. N. KONDRATYEV, AND A. LAFRUMEAU. <i>Physik. Z. Sowjetunion</i> 2, 201-20 (1932).—Expts. on the extinction of Na fluorescence by N_2 and CO are described. The extinction cross section decreases with the energy of the Na atoms, as noted by Terenin and Pridishejewa using I_1. An interpretation of the mechanism of the reactions is given on the basis of the potential-energy curves between the colliding atoms. General classes of at. and mol. processes resulting in the extinction of at. fluorescence are also discussed and illustrated by examples.</p> <p>MORRIS MUNKAT</p> <p>2-hr. Fil.</p>																																																			
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1ST AND 2ND CODES										3RD AND 4TH CODES									
KONDRAT'YEV, V.N.										PROCESSES AND PROPERTIES INDEX									
<p>The nature of the red shift in the infra-red emission bands in flame spectra. V. N. Kondrat'ev. <i>J. Exptl. Theoret. Phys. (U.S.S.R.)</i> 3, 265-72 (1967); <i>cf. C. A. 27, 5045</i>.—The red shift in the intensity max. of the emission band relative to the position of the max. of the corresponding absorption band is very characteristic for many flame spectra. It can be explained by means of the superposition of single bands, which correspond to the oscillation quanta emitted by the moles, when strongly oscillating as a result of the reaction which is taking place. The quant. relation between the magnitude of the shift of the intensity max. of the band and the energy of oscillation is established so that it is possible to estimate the energy of the mol. by means of the measured shift. This makes it possible to use the analysis of the infra-red flame spectra for detg. the chem. processes taking place in the burning zone.</p> <p>Marie Goyer</p>										<p>2 max. - Konrat'ev. R.</p>									
ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION										E-2									
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6A

3

The visible absorption spectrum of iodine and the induced predissociation of the iodine molecule. V. Kondrat'ev and L. Polak. *Physik. Z. Sowjetunion* 4, 764-80 (1963) (in German).—The absorption curves of I in the range 5500–5100 Å. for various pressures of N₂, O₂, HCl and of I₂ are recorded, showing 3 maxima corresponding to the levels in the excited mol. corresponding to the vibrational quantum nos., 22, 29 and 39. The effective cross-section of N was calcd. to be 30 times the cross section from kinetic theory. The effect of added I on the adsorption spectrum resembles that of other gases. L. G.

ASAC-55-A METALLURGICAL LITERATURE CLASSIFICATION

12000 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1ST AND 2ND COLUMNS										PROCESSIES AND PROPERTIES INDEX										3RD AND 4TH COLUMNS									
<p><i>cc</i></p> <p><i>22-1</i></p> <p><i>Drkr-AN 335R</i></p> <p>Atmospheric water vapour band 6324 Å. in the solar spectrum. V. N. KOSNITSKY and D. I. KNOXIN (Compt. rend. Acad. Sci. U.R.S.S., 1934, 1, 170-176).—225 new lines have been measured over an interval of 170 Å. around 6324 Å. in the spectra of the sun near the horizon. By comparison with the same spectral region for the sun higher in the sky some of these lines have been identified as due to terrestrial H₂O vapour, and three others as new lines of the O₂ band. From measurements of the 6324 Å. H₂O band of the 2, 1, 1 vibration state, val. of the line structure constants, and moments of inertia of the H₂O mol. are calc. The valency angle and O-H distance are 104.16° and 1.016×10^{-8} cm., respectively. J. W. S.</p>																													
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PROCESSES AND PROPERTIES INDEX																																																			
<p><i>BC</i></p> <p>Atmospheric OH⁺ bands in the solar spectrum. D. L. Lippert and V. N. KONDRATYEV (Ongut. russ. Acad. Sci. U.S.S.R., 1964, 1, 345-349). The atm. absorption spectra has been studied over the region 6000-8000 Å. with the sun 5° above the horizon. From the relative intensities of the H and F⁺ O⁺ bands the ratio O⁺:O⁺ is calc. as 500:1 at 6.0 Å. 1961, 1962. J.W.S.</p>																																																			
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8A

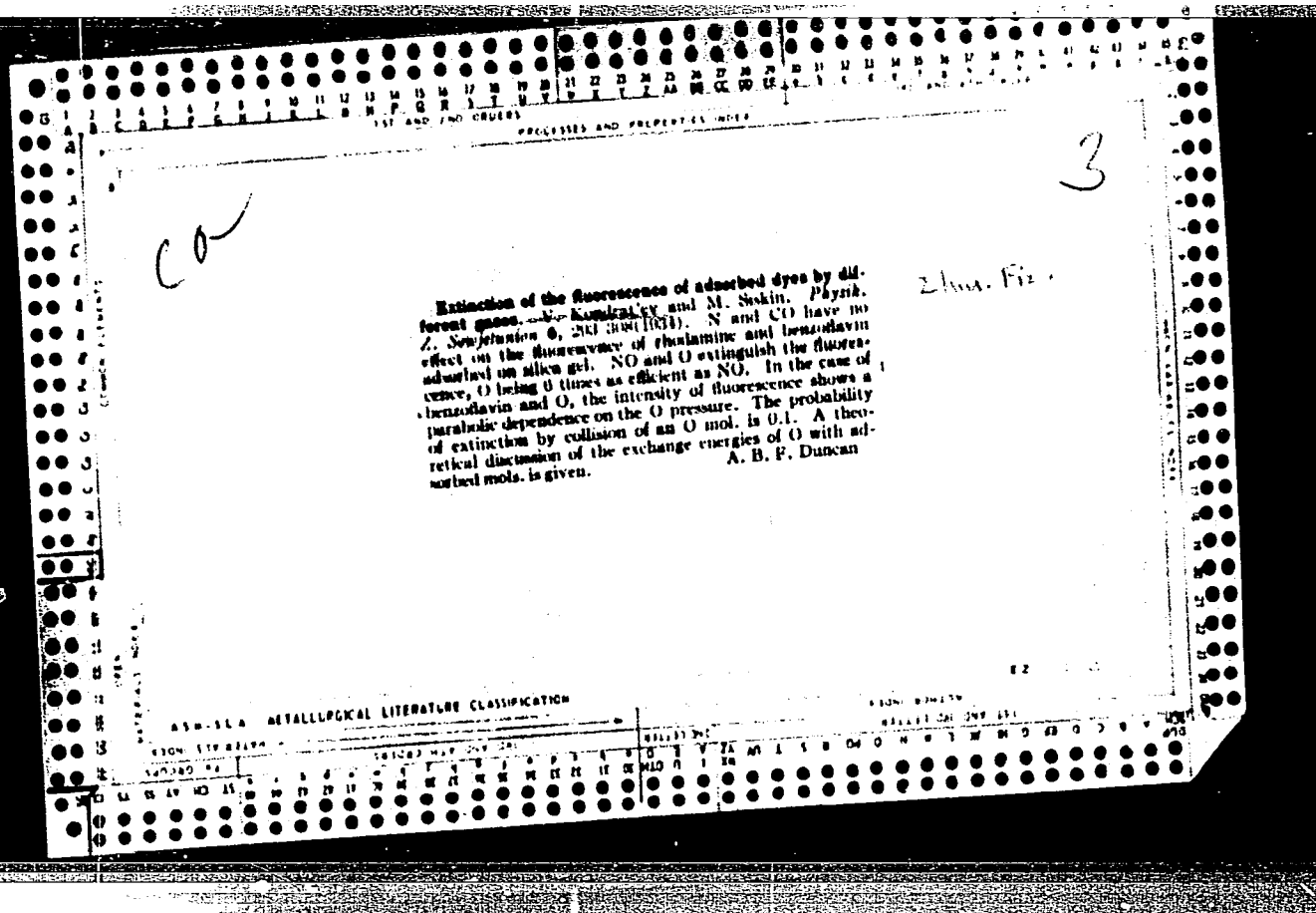
A53

284. Quenching of Fluorescence of Adsorbed Dyes by Gases. V. Kondratyev and M. Siskin. *Phys. Zvez. d. Sopotstven.*, 1954, 2, pp. 295-300, 1954. In German.—The influence of N_2 , CO , NO , and O_2 on the brightness of fluorescence of benzofluorin adsorbed in silica gel and of fluorescein by O_2 has been studied. NO and O_2 have a marked effect of quenching on benzofluorin. The relative intensity falls off hyperbolically with the gas pressure in the case of O_2 . The probability of energy exchange between an excited benzofluorin molecule and the adsorbed O_2 is considered to be high. An attempt is made from the quantitative results to estimate the size of the molecule and life of the excited state of benzofluorin.

J. E.

AS 15 A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDER										3RD AND 4TH ORDER									
PROCESSING AND PROPERTY INDEX																			
<p><i>BC</i></p> <p><i>A-1</i></p> <p><i>Zhou. Fiz. Khim.</i></p> <p>Photochemical oxidation of hydrogen iodide. V. KONDRAKOV, E. KONDRAKOVA, and A. LAUREN (J. Phys. Chem. U.S.S.R., 1954, 8, 1411-1423).—A linear relationship was established between the</p> <p>fraction of the HI oxidized and the ratio $HI:O_2$. The reaction mechanism is discussed. Ch. Ann. (c)</p>																			
<p>ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION</p>																			
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1ST AND 2ND COLUMNS										3RD AND 4TH COLUMNS									
PROCESSES AND PROPERTIES INDEX																			
<p><i>BC</i></p> <p><i>A-1</i></p> <p>Phenomena of the exchange of wave energy in collisions of molecules. V. KONDRATSEV (Uspechi Fiz. Nauk, 1984, 14, 982-1008).—A review. <i>Uspechi</i> Ch. ABN. (e)</p>																			
ASD-51A METALLURGICAL LITERATURE CLASSIFICATION																			
FROM SYNDICATE										FROM ROMANIA									
1ST AND 2ND COLUMNS										3RD AND 4TH COLUMNS									
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BC

A-1

Induced chemiluminescence of mercury in the carbon monoxide-oxygen flame. V. KONDRATYEV (Acad. Physicochim. U.R.S.S., 1935, 2, 126-128).—Hg becomes chemiluminescent in $\text{CO} + \text{O}_2$ at 650–700°. Since the line 2537 Å. is below the shortest λ of the CO flame spectrum, it is concluded that the activation must be due to collision with excited CO_2 . A similar mechanism is proposed for the activation of N_2 in the explosion of $\text{CO} + \text{O}_2 + \text{N}_2$ at high pressures. R. S.

ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION

111 AND 114 (ORDER)		140 AND 114 (ORDER)	
PROCESSES AND PROPERTIES INDEX			
BC		A-1	
<p>Induced pre-dissociation and energy exchange in nitric oxide. E. KOSNITSKYA and V. KONDRATOV (Zets. Fizichesk. U.S.S.R., 1935, 3, 1-10).--</p> <p>The ratio of intensities of the β- and γ-bands in the emission spectrum of NO alone and when mixed with A has been determined. In the spectrum of pure NO the γ-bands are much more intense than the β-bands, but in that of the mixture they are of approx. equal intensity. The phenomena can be explained on the hypothesis of induced pre-dissociation in the π state. The probability of the transfer of a quantum of vibrational energy of an excited NO mol. into kinetic energy on collision with an A atom is calc. to be approx. 1. A. J. M.</p>			
ASTM-ILA METALLURGICAL LITERATURE CLASSIFICATION			
111 AND 114 (ORDER)		140 AND 114 (ORDER)	
111 AND 114 (ORDER)		140 AND 114 (ORDER)	

CA

PROCESSES AND PROPERTIES - INDEX

3

Induced predissociation in the kinetics of photochemical reactions. V. Kuznetsov. *Sov. Phys. Chem.* (U.S.S.R.) 8, No. 4 (1962) (in Russian); *J. Phys. Chem.* (U.S.A.), 67, No. 2 (1963) (in Russian).—The addition of O₂, HCl and N₂ intensifies the absorption coeff. in the predissociation of I₂. The effect is due to a breakdown of the selection rule ΔJ = 0 and not to magnetic factors. F. H. R.

ASB-SEA METALLURGICAL LITERATURE CLASSIFICATION

167082 54 **167082 MIP ONY QSI** **COLLECTIONS:** **SELECT ONE OR MORE**

167082 54 **167082 MIP ONY QSI** **COLLECTIONS:** **SELECT ONE OR MORE**

636. Photochemical Oxidation of Nitrogen. V. Kondratyev.
Acta Physicochimica, 2, 2-3, pp. 247-253; *Diss.*, 254, 1938. In English.
 A series of experiments is made on the photochemical oxidation
 of N_2 and CO by O_3 and of CO by NO , as well as on the dissociation of NO
 by radiation from a quartz mercury arc. An increase in the yield of NO_2
 by the addition of CO and H_2 to the mixture of N_2 and O_3 is found
 is described, with which the depolarizations have been measured for
 CH_4 , H_2 , CO , and N_2O of the light scattered by the molecules (Rayleigh
 scattering). The results of previous workers are compared, and the great
 diversity of the results obtained is stressed. An analysis is made of the
 errors to which such apparatus is subject, and the chief source of error is
 thought to be due to a property of the Wollaston prism frequently em-
 ployed. It is shown that if the beam of light striking the Wollaston is
 not of uniform intensity across its cross-section, the Rayleigh $\tan^2 \alpha$ law will
 not be fulfilled, but the difficulty can be got over by replacing $\tan^2 \alpha$ with
 $\tan \alpha_1 \times \tan \alpha_2$, where α_2 has been obtained after rotating the Wollaston
 through 180° from the position in which α_1 was found. For CH_4 is found
 ρ (depolarization) = 0, whereas earlier workers obtained 0.015 and
 0.012. This removes the objection against the tetrahedral symmetry of
 CH_4 . For CO_2 is found 0.0784 ± 0.008 ; for H_2 , 0.008 ± 0.001 , and for
 N_2O , 0.100 ± 0.004 . A. C. M.

KONDRAT'YEV, V.N.																									
<p>The effective cross section in the recombination of atoms with radiation. V. N. Kondrat'yev. <i>J. Exptl Theoret. Phys.</i> (U. S. S. R.), 20:4619 (1955). It is shown that the effective cross section q of the recombination of atoms with radiation of light and the absorption coeff. K, found by Terenin and Prileshajeva (<i>C. A.</i> 27, 3141) for the case $h\nu$ much less than $h\nu_0$ is also applicable for $h\nu$ much greater than $h\nu_0$. Conclusion: The recombination probability is independent of the relative velocities of the atoms provided the vibrational state of the resulting mol. is not considered.</p> <p style="text-align: right;">F. H. Rathmann</p>																									
<p>ASD-11-A DETAILERIAL LITERATURE CLASSIFICATION</p>																									

1ST AND 2ND COLUMNS		PROCESSING AND PROPERTY INDEX		1ST AND 2ND COLUMNS	
SA		<p>1891. Quenching of Na Fluorescence. V. Kondratjev and M. Stekhn. <i>Phys. Zeits. d. Sowjetunion</i>, 2, 6, pp. 644-648, 1931. In German.</p> <p>—NaI vapour is excited by radiations from Al, Zn and Fe sparks and the quenching of the D fluorescence of Na by admixture with A, N₂, NO and O₂ is investigated. In A the quenching is independent of the energy of Na⁺ (which is varied from 2 to 23 kcal./gm. atom), and the quenching cross-section is about 0.1 of the gas-kinetic cross-section. In N₂ and NO the peculiar dependence of the quenching cross-section on the energy of Na⁺ is explained by the existence of two types of photochemical dissociation of NaI. In NO and O₂ the quenching is greatest and independent of the resonance between the vibrational energy of NaI and the electronic emission energy of Na. The chief factor appears to be the magnitude of the forces of interaction of the colliding particles, the thermal effect of the possible reaction Na⁺ + AB → NaA + B (where AB = quenching molecule) being taken as a measure of these forces.</p>		A53	
FROM ATOMIZATION		FROM CONDENSATION		FROM ATOMIZATION	
FROM ATOMIZATION		FROM CONDENSATION		FROM ATOMIZATION	

3

CA

Optical method of determining stable products in flames.
V. Komarov. *Bull. acad. sci. U. S. S. R., Classe sci. math. nat., Ser. chim.* No. 2, 363-70 (in English 370 M) (1958). — The short-wave portion of the radiation of many common flames is considered chemiluminescent. In the burning zone about 10% of the CO₂ mole. are electron-excited; this high concn. of excited mole. is believed to play an important part in the kinetics of the reaction. Spectral analysis has indicated the presence of the free radicals OH, PO, SO, NH, CH and C. OH has been found in the combustion zone of H₂ and a number of intermediate oxidation products in the burning zone of hydrocarbons. H. E. Messmore

12. Ak Nauk SSSR.
Ser. Khim.

ASD-31A METALLURGICAL LITERATURE CLASSIFICATION

<div style="display: flex; justify-content: space-between;"> 101 AND 100 (9018) PROCESS AND PROPERTIES INDEX 100 AND 9TH (9018) </div>									
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 15%;"> <p style="transform: rotate(-90deg); transform-origin: left top;">COMBUSTION ELEMENTS</p> <p style="transform: rotate(-90deg); transform-origin: left top;">C O₂</p> <p style="transform: rotate(-90deg); transform-origin: left top;">METALLURGY</p> </div> <div style="width: 70%; padding: 10px;"> <p style="font-size: 2em; margin-bottom: 20px;">La</p> <p>3262. Flame of CO and O₂. H. Kondratjew and V. Kondratjew. <i>Acta. Physicochimica</i>, 4, 4, pp. 647-668, 1938. In English.—The effect of pressure (10 to 180 mm.) on the intensity of the visible radiation emitted by the flame of a CO + O₂ mixture is investigated. The ratio of the light intensity to the rate of CO₂ formation increases with pressure up to a maximum at 35-37 mm. The decrease in the relative intensity from the maximum to its value at 180 mm. follows a hyperbolic law indicating that the decrease is due to quenching of the chemiluminescence. The quenching efficiency</p> <p>is of the order of unity. It is suggested that there are two mechanisms for the oxidation of CO and that about one out of every ten CO₂ molecules formed in the flame is excited. Such a high proportion of excited CO₂ molecules indicates that they must play an important part in the kinetics of oxidation of CO.</p> <p style="text-align: right;">A. H.</p> </div> <div style="width: 10%; text-align: right;"> <p style="font-size: 2em; margin-bottom: 20px;">A 53</p> <p style="font-size: 2em;">1</p> </div> </div>									
<p>ASAC-55A METALLURGICAL LITERATURE CLASSIFICATION</p>									
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1ST AND 2ND COORDS.										100 AND 4TH COORDS.									
PROCESSING AND PROPERTY INDEX																			
<p><i>30</i></p> <p><i>d-1</i></p> <p><i>Job</i></p> <p>Spectrum of the cold flame of ether. V. KONDAROV (Acta Physicochim. U.R.S.S., 1936, 6, 556-560). The measurements by Emelian of the bands in the spectrum of the cold flame of Et_2O (A., 1936, 1315) are similar to those by Hespberg and Frann of the fluorescence spectrum of CH_3O (A., 1933, 598). It is concluded that the emitters in the cold flame of Et_2O are CH_3O moles.</p> <p style="text-align: right;">O D R.</p>																			
ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION																			
FROM SYNOPTIC										FROM NON-INT									
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1ST AND 2ND COLUMNS																										3RD AND 4TH COLUMNS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>2669. Luminescence of Plastics. V. Kondratyev. <i>Acta Physica Polonica</i>, 8, pp. 65-77, 1968. In German.—Thermoluminescence is first considered and it is concluded that the specific property in the absence of a selective emission consists of a proportionality between intensity and pressure. Chemiluminescence is treated more fully, the heat emission of a number of reactions being given, and the significance for chemical kinetics being considered. F. S.</p>																																																			
<p>ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
<p>GROUPS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52</p>																																																			

5451. Hydroxyl Radicals in the Electric Discharge in Water Vapour. V. Kondrat'ev and M. Zakhin. *Acta Physicochimica*, 3, 3, pp. 301-324, 1936. In English.—The sensitivity of the optical method of measuring small concentrations of gases (by their absorption spectra) may be increased by substituting a line source for the usual continuous source of light. This method is now used for the study of OH radicals in the electric discharge. Full experimental details are included. The temperature of the radicals determined spectroscopically is found to be about 100° C. with discharge currents of the order of 100 mA. On the assumption that the absorption coefficient of the OH is of the same order of magnitude as that of the Na atom (for the D lines), a calculation is made of the concentration of the OH radicals. With different discharge currents the concentrations correspond to partial pressures of the order 10^{-4} to 10^{-6} mm. It is shown that the relation between the concentration of OH radicals (\bar{n}) and the time (t) elapsing from the moment of stopping the discharge, the strength of the discharge current (I) and the vapour pressure (p) of the water, satisfy quantitatively the law $\bar{n}(t) = a\sqrt{p}\sqrt{I}(1 + b\sqrt{p}\sqrt{I}t)$, based on the assumption that the OH radicals are destroyed by the process $2\text{OH} \rightarrow \text{H}_2 + \text{O}_2$. This process probably corresponds to the actual mechanism of the phenomenon, and its calculated efficiency is of the order of 0.61. H. H. Ho.

11. 11. 110.

Quenching of the fluorescence of sodium. V. Kondrat'ev, and M. Zilkin. *J. Exptl. Theoret. Phys.* (U.S.S.R.) 6, 110-25 (1946). -- D fluorescence of Na excited in NaI by Al, Zn and Fe sparks was quenched by A, N and O. The effective cross sections are for A about $1/2$ of the gas-kinetic, while for N and O they depend on the energy of the Na atom. This is due to two types of photoabsorption of NaI. (M.N., NO, O, CO and H, the most effective quenchers are NO and O). This effect, however, is due not to the resonance effect but to the chem. interaction of the colliding particles. P. M. Nathmann

Zhuo-He-He: i Ten. Fin.

ASB-364 METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
<p>ca</p>										<p>Investigation of the CO-O₂ flame. I. Influence of the pressure of the CO-O₂ mixture on the intensity of the visible flame. E. Kondrat'eva and V. Kondrat'ev. J. Phys. Chem. (U. S. S. R.) 6, 124-9 (1962). The light yield rises rapidly as the pressure increases, shows a max. at about 3.7 mm. and then falls along a hyperbolic curve. about 1 in 10 CO₂ mols. is in the excited state. P. H. Rathmann</p> <p>2mm. Fl. Khim.</p>									
<p>ASD-3LA METALLURGICAL LITERATURE CLASSIFICATION</p>																			
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BC

Photochemical activity of the quartz mercury arc towards the reactions $\text{CO} + \text{O}_2$ and $\text{CO} + \text{NO}$. M. SISKIN, V. KONDRATEV, and T. NUSIN-KHIVSON (J. Phys. Chem., Russ., 1936, 8, 281-289).-- Filtration of the arc radiation through CO diminishes the rate of reaction. NO absorbs the active radiation as well and emits two series of the γ -band; the activation of NO is presumably produced by the line 2236.9 Å. and other weak lines. The dependence of the fluorescence of the O_2 on the pressure accords with Rasetti's theory (A., 1929, 866). J. J. B.

2236.9 Å.

2236.9 Å.

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
COMMON ELEMENTS																										COMMON RARE EARTH ELEMENTS																									
MATERIALS INDEX																										PROCESSING AND PROPERTIES INDEX																									
<div style="display: flex; justify-content: space-between;"> CH 3 </div> <p>Structure of the ultraviolet absorption spectrum of osmium. A. Yakovleva and V. Kondrat'ev. <i>Physik. Z. Sowjetunion</i> 9, 106-8 (1936).—A study of the ultraviolet spectrum of Os up to 3000 Å. using a 3-m. path and a powerful osmium, and a more accurate measurement of the band heads in the region $\lambda\lambda$ 3000-3100 leads to the following formulae for the bands of the bands: $\nu = 20,447 + 620.3\nu_1 - 16.0\nu_1^2 - 0.33\nu_1^3 + 351.7\nu_2 - 4.6\nu_2^2 - 0.17\nu_2^3 - 13.0\nu_3 - 1.82\nu_3^2 - 0.5\nu_3^3 - 1066\nu_4 + 11.5\nu_4^2$. This formula covers the range 3000 to 3000. Calcn. of energies of disson. and assignment of frequencies to vibrations in the mol. are discussed. C. E. P. J.</p>																																																			
<div style="display: flex; justify-content: space-between;"> <div> <p>ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>1930M SYMBOLISM</p> </div> <div> <p>1930M SYMBOLISM</p> <p>1930M SYMBOLISM</p> </div> <div> <p>1930M SYMBOLISM</p> <p>1930M SYMBOLISM</p> </div> </div>																																																			

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<p>bc</p> <p>a-1</p> <p>Raman spectrum of an aqueous solution of HNO_2. V. Kopylovskiy and O. Serebina (Phys. Zh. SSSR, 1958, 9, 270-280). The Raman spectrum of aq. HNO_2 shows two lines $\nu_1 = 2025 \text{ cm}^{-1}$ and $\nu_2 = 675 \text{ cm}^{-1}$, attributed to the ion NO_2^-. Force constants (cm^{-1}) for the ions NO_2^- and NO_2^+ are calc. by the usual equations and found to be 18%, \pm in the case of the isotopic mole. NO_2 and NO_2^+. This anomalous result is discussed. H. C. G.</p>																																																																																																													
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PROCESS AND PROPERTIES INDEX																																																									
<p>2112. Induced Predissociation in the Visible Bromine Spectrum. L. Avramenko and V. Koshcheyev. <i>Phys. Zeits. A. Sowjetunion</i>, 10, 8, pp. 741-749, 1965. Experiments are made upon the predissociation induced in the visible absorption spectrum of Br_2 vapour. Four maxima of selective enhancement of absorption, corresponding to $v' = 23, 24, 25$ and 26, are observed and are interpreted as regions of induced transition of the excited Br_2 molecule to unstable electronic states. It is further observed that the plot of the reciprocal of the alteration of the absorption coefficient against the reciprocal of the pressure of the foreign gas is a straight line for pressures up to 600 mm. The effective cross-section for the collisions, as deduced from these data, comes out to be about 10 times greater than the gas-kinetic cross-section. The observed effects are practically independent of that nature of the foreign gas, whence it is concluded that chemical forces play a small part in the mechanism. L. A. W.</p>																																																									
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<p>111 AND 112 NUMBER</p>		<p>TOP AND SIDE NUMBER</p>	
<p>PERCENTAGE AND PROBABILITY INDEX</p>			
<p>COMMON ELEMENTS</p>		<p>COMMON PROBABILITY INDEX</p>	
<p>FLAME OF carbon monoxide and oxygen. II. Influence of the composition of the mixture on the intensity of the visible radiation from the flame. E. E. KONDRATIEVA and V. KONDRATYEV (Acta Physicochim. U.S.S.R., 1967, 3, 625-636; cf. A., 1968, 1468).—At $p_{\text{CO}} = 40$ mm. a decrease in light yield is found with $p_{\text{O}_2} > 20$ mm., whilst with $p_{\text{O}_2} = 20$ mm. the decrease is obtained with $p_{\text{CO}} > 40$ mm. This is attributed to quenching of chemiluminescence, the quenching constants being 0.034 and 0.102 mm.⁻¹ for CO and O₂ respectively. The greater val. for O₂ is attributed to the possible process $\text{CO}_2^* + \text{O}_2 \rightarrow \text{CO}_2 + 2\text{O}$, leading to branching of reaction chains. With $p_{\text{CO}} + p_{\text{O}_2} = 57$ mm., an increase in light yield is obtained with increasing [CO], ascribable in part to quenching of chemiluminescence. In all cases deviations from the theoretical quenching curves indicate a change in reaction mechanism. Addition of N₂ at $p_{\text{CO}} = 40$ mm., $p_{\text{O}_2} = 20$ mm. causes an increase in total combustion, attaining a max. at $p_{\text{N}_2} = 100$ mm. The change in light yield indicates that the mechanism is changed and involves oxides of N. J. W. S.</p>			
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>FROM SYNTHESE</p>		<p>FROM SCHILLY</p>	
<p>SECTIONS</p>		<p>SECTIONS</p>	
<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>		<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>	

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4842. Hydrogen Flame Spectrum. V. Kondratyev and M. Zaitin. *Acta Physicochimica*, 7, 1, pp. 65-74, 1937. In English.—The spectrum of the diffuse bands of electrolytic gas is studied. The intensity distribution in the OH bands differs from that found in ordinary flames on account of the comparatively low temperature. The relative intensities of the bands 3084 (0''), 3011 (1'') and 3075 (2'') correspond closely to the respective transition probabilities, and it is shown that excitation to the levels 0' = 0, 1 and 2 of the OH molecule takes place in a single elementary act and that the heat of reaction of the process $H + H_2 + O_2 \rightarrow H_2O + OH$ is the source of the excitation energy. From the measurements of the absolute intensity of the OH spectrum it is shown that (1) the latter is of chemical origin and (2) approximately one excited OH molecule is formed in the zone of the diffuse flame for every 10^6 molecules of water produced.

AUTHORS.

PROCESS AND PROPERTIES INDEX																									
1ST AND 2ND EDITIONS													3RD AND 4TH EDITIONS												
<p>Intensity in spectra of diatomic molecules. V. Kozlov. <i>J. Exptl. Theoret. Phys. (U. S. S. R.)</i> 7, 177-82 (1937); <i>Chem. Zvesti.</i> 10, 824. -- The formula used by Hutchisson (cf. <i>C. A.</i> 36, 5031) for the calcn. of the relative intensities of the bands in electron spectra of sym. diatomic mols. is also useful for the calcn. of the intensities in the spectra of asym. mols. when the bands arise through the combination of lower vibration levels. With OH and NO spectra as examples, it is shown that the formula mentioned gives a qualitatively correct distribution of intensity in these spectra. M. G. Moore</p> <p>2. <i>Ann. Physik. Chem. Phys.</i></p>																									
<p>ASO-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>FROM 1900-1949</p> <p>1900-1949</p> <p>1950-1959</p> <p>1960-1969</p> <p>1970-1979</p> <p>1980-1989</p> <p>1990-1999</p> <p>2000-2009</p> <p>2010-2019</p> <p>2020-2029</p> <p>2030-2039</p> <p>2040-2049</p> <p>2050-2059</p> <p>2060-2069</p> <p>2070-2079</p> <p>2080-2089</p> <p>2090-2099</p> <p>2100-2109</p> <p>2110-2119</p> <p>2120-2129</p> <p>2130-2139</p> <p>2140-2149</p> <p>2150-2159</p> <p>2160-2169</p> <p>2170-2179</p> <p>2180-2189</p> <p>2190-2199</p> <p>2200-2209</p> <p>2210-2219</p> <p>2220-2229</p> <p>2230-2239</p> <p>2240-2249</p> <p>2250-2259</p> <p>2260-2269</p> <p>2270-2279</p> <p>2280-2289</p> <p>2290-2299</p> <p>2300-2309</p> <p>2310-2319</p> <p>2320-2329</p> <p>2330-2339</p> <p>2340-2349</p> <p>2350-2359</p> <p>2360-2369</p> <p>2370-2379</p> <p>2380-2389</p> <p>2390-2399</p> <p>2400-2409</p> <p>2410-2419</p> <p>2420-2429</p> <p>2430-2439</p> <p>2440-2449</p> <p>2450-2459</p> <p>2460-2469</p> <p>2470-2479</p> 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<p>Light absorption and absolute concentration of hydroxyl. I. AVANESOV and V. KONDRATYEV (Ann. Phys. Chem. U.S.S.R. 1957, 7, 557-565)</p> <p>Abn. absorption peaks for OH band at $\lambda = 2804 \text{ \AA}$ are calc. by theoretical formulae from absorption measurements made at different temp. on the mixture $1/3 \text{ H}_2\text{O} + 2/3 \text{ O}_2$. The calc. heat of the reaction $\text{H}_2 + 2081 \rightarrow 2\text{H}_2\text{O}$ is 134 kg.-cal. and equilibrium constants for the reaction are derived. The data are used to find the concn. of OH radicals in a dil. H_2 flame.</p> <p style="text-align: right;">J. A. K.</p>																																																			
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<p>Carbon monoxide-oxygen flame. II. Influence of composition on the intensity of the visible luminosity of the flame. III. Absolute intensity of electronic emission of the flame. E. KONDRATYUK and V. KONDRATYUK (J. Phys. Chem. Russ., 1937, 9, 734-745, 747-751; cf. A., 1938, 1409).—II. With $p_{CO} = 40$ mm., the change in p_{O_2} from 30 to 300 mm. causes a decrease in luminosity which can be explained by a quenching of chemiluminescence with a quenching const. $K_q = 0.162 \text{ mm}^{-1}$. With $p_{O_2} = 20$ mm., the change in p_{CO} from 40 to 100 mm. causes a quenching with the const. $K_q = 0.084 \text{ mm}^{-1}$. N_2 (0-440 mm.) causes a change in luminosity, indicating its influence on the mechanism of the reaction $CO + O_2$ (formation of N oxides). III. One excited CO_2 mol. is formed per 125 mols. of CO_2 in the CO flame at $p = 100$ mm. and 740°. The concn. of CO_2 in the flame is $>$ the thermo-dynamical equilibrium val. E. R.</p>																									
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<p><i>Be</i> <i>A-1</i></p> <p>Spectroscopy of hydroxyl. V. N. KOMRATSEV (Bull. Acad. Sci. U.R.S.S., 1938, Ser. Phys., 371—373).—The calc. val. of the intensities of OH bands agree satisfactorily with experiment. The average life of excited OH can be calc. and hence the order of the probability val. of the quenching of the fluorescence of OH. A. J. M.</p> <p style="text-align: right;"><i>vest. AN SSSR, Ser. Fiz.</i></p>																																																			
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<p><i>Ca</i></p> <p>The mechanism of the recombination of OH radicals in the electric discharge. V. Kondrat'ev. <i>Acta Physicochim. U. R. S. S. R.</i> 315-22 (1958) (in English). It is shown that the most probable process governing the destruction of OH radicals in the zone of an elec. discharge in water vapor is $2OH + M = H_2O_2 + M$. The calcd. value of the OH recombination const. agrees satisfactorily with the measured value. The fact that it is impossible to observe H_2O_2 formed as a result of the recombination of OH is attributed to secondary reactions between H_2O_2 and either H or OH, leading to its decompn. A. A. Vernon</p>																																																			
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<div style="position: relative; height: 100%;"> <div style="position: absolute; top: 10%; left: 10%; font-size: 4em; transform: rotate(-45deg); opacity: 0.5;">SA</div> <div style="position: absolute; top: 10%; right: 10%; font-size: 4em; transform: rotate(-45deg); opacity: 0.5;">A530</div> <div style="position: absolute; top: 30%; left: 20%;"> <p>2948. Influence of Moisture on the Intensity of the Visible Radiation of the Flame of CO and O₂. H. Kondratyeva and V. Kondratyev. <i>Acta Physicochimica</i>, 8, 4, pp. 481-490, 1958. In English.</p> <p>The light yield in the visible part of the spectrum of the flame of $2CO + O_2$ has been measured as a function of the amount of water vapour contained in the reaction mixture. It has been shown that the light yield decreases rapidly with increase of the partial pressure of water vapour. It is suggested that the observed effect is due to a continuous change in the oxidation mechanism. It is suggested that water plays a twofold rôle: as the initiator of the reaction chain and as a participator in the latter (as OH radicals and H₂ atoms). From a comparison of the rates of oxidation of CO and conversion of the water gas an estimate is obtained for the average length of a chain. [See also Abstracts 3178 and 3963 (1967).]</p> </div> </div>																													

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<p><i>Carbon monoxide-oxygen flame. IV. Influence of moisture on the intensity of the visible luminosity of the flame. E. KONDMAROVA and V. KONDRATYUK. (J. Phys. Chem. Russ., 1918, 11, 331-333).—In presence of H₂O vapour (e.g., 1 mm. (Hg) of H₂O for 30 mm. CO and 30 mm. O₂) CO is oxidized more completely but the luminosity of the flame is lowered. This decrease of the luminosity is too great for interpretation as due to extinction of luminous species; it reveals the reaction CO + H₂O = CO₂ + H₂. J. J. B.</i></p> <p><i>Zhur. Fiz. Khim.</i></p>																																																			
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<p>Absorption spectrum and life of the carbon sulfide radical. V. Kondrat'ev. <i>Compt. rend. acad. sci. U. R. S. S. 20, 547-8(1938)</i> (in English).—The gas drawn from a discharge tube filled with sulfur vapor in contact with petrolatum gave a series of bands ascribed to the CS radical. The observed band-heads (λ in Å.) were: 2373.3, 2500.3, 2444.0, 2385.7, 2505.5 and 2387.8, the last two being from less intense bands. Under the exptl. conditions (0.05 mm. pressure and room temp.) the av. life of the CS radical is of the order of several minutes.</p> <p style="text-align: right;">George Ayers</p>																									
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
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<p><i>BC</i> <i>A 1</i></p> <p>Mechanism of the recombination of the hydroxyl radical in the electric discharge through water vapour. V. KONDRATEN (Acta Physicochim. U.R.S.S., 1969, 20, 791-804).—In the electrical discharge through H₂O vapour OH radicals disappear to about an equal extent by the two processes:</p> <p>$2OH + M \rightleftharpoons H_2O_2 + M$, and $OH + H + M \rightleftharpoons H_2O + M$. At high temp. the reaction $OH + H \rightleftharpoons H_2 + O$ also occurs and becomes predominant above 300°.</p> <p style="text-align: right;">O. J. W.</p> <p><i>Lab. Elementary Processes, Inst. Chem. Phys., Leningrad</i></p>																																																			
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1ST AND 2ND GROUPS																										3RD AND 4TH GROUPS																									
PROCESS AND PROPERTIES INDEX																																																			
<p>Investigation of the flame of carbon monoxide and oxygen. VI. Photochemical oxidation of carbon monoxide near the region of self-ignition. R. Kondrat'eva and V. Kondrat'ev. <i>Acta Physicochim. U. R. S. S. R.</i> 19, 1245-1250 (1965) (in English); cf. C. A. 60, 4825. At 224-400° and 80 mm. pressure, by a streaming method, the rate of the reaction $CO + 2O_2 \rightarrow CO_2 + 3.5O_2$ (excess) in a quartz vessel illuminated by an Al spark is practically constant, but rises rapidly between 442 and 490° (self-ignition some 90 mm. at 490°, 70 at 442, 40 at 420, none at 410°). From the values of $\gamma = \%$ C_2H_4 formed in the table, and assuming that the increased reaction rate is due to a chain reaction, the length of the chains is 2 at 400, 3 at 420, 5 at 430, 16 at 442 and 600 at 490°. At 490° the dark reaction is approx. 6.5 times the photochem. reaction. The partial pressures of the active centers are, resp., 0.045 and 0.0025 mm./mm. Practically no ozone was found under the exptl. conditions used. P. H. R.</p>																																																			
<p>Lab. Elementary Processes, Inst. Chem. Phys., Leningrad</p>																																																			
<p>ASD-31A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
<p>GROUPS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52</p>																																																			

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PROCESSES AND PROPERTIES INDEX																			
BC										A-1									
<p>Carbon monoxide-oxygen flame. V. Influence of temperature on the yield of visible light of a flame of $2CO + O_2$. E. KONDRATSEVA and V. KONDRATSEV (J. Phys. Chem. Russ., 1939, 13, 168-173; cf. A., 1938, 1, 577).—The temp. of the flame or the rate of burning between 700° and 1000°. The yield of light increases with the % p of CO escaping the combustion. When p is high (e.g., 90%) the yield is independent of temp.; it diminishes with rising temp. at p < 90%. This decrease cannot be attributed to a quenching effect of CO, as CO_2 is less effective than O_2. J. J. B.</p> <p>Zhu. Fiz. Khim.</p>																			
ASM-ILA METALLURGICAL LITERATURE CLASSIFICATION																			
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1ST AND 2ND SERIES		PROCESSES AND PROPERTIES INDEX	
KONDRAT'YEV, V.N.		2	
<p><i>ca</i></p> <p>Spectroscopic investigation of the carbon disulfide flame. 1. The cold flame. V. N. Kondrat'ev. J. Phys. Chem. (U. S. S. R.) 13, 1200-70 (1959). A spectroscopic study of the cold CS₂ flame showed that at 2-4 mm. pressure only minute amts. of CO₂ are formed. When $r = (O_2/CS_2) > 2.5$ the complete cold-flame combustion yields SO₂ and CO; for $r < 2.5$, incomplete combustion yields SO₂, CO, COS and SO and CS in smaller amts. When r is much less than 2.5, S, as well as CS is found in the flame some in amts. considerably exceeding the equil. concn. for the temp. of the flame (about 200°), 4.7% S for $r = 1.76$, 13.0% for $r = 0.87$. F. H. Rathmann</p>			
Inst. of Chem. Physics, Lab. of Elementary Processes, Leningrad			
ASR-51A METALLURGICAL LITERATURE CLASSIFICATION			
1ST AND 2ND SERIES		3RD AND 4TH SERIES	
1ST AND 2ND SERIES		3RD AND 4TH SERIES	

2

ca

Spectroscopic study of the intermediate substances formed during the oxidation of hydrogen gas, carbon monoxide and carbon dioxide. V. Kozlovskiy. Bull. Acad. Sci. U. R. S. S. Chem. 1960, 801-8 (in English, 800).—The inability of many of the intermediate substances formed in the reaction made it impossible to use ordinary chem. methods for the analysis and identification of these substances. The OH radical was detected in the flame of H₂ by the spectroscopic method of analysis (the method of linear absorption). The origin of OH in the flame was in chem., and the radical plays a definite role in the oxidation of H₂. An inevitable consequence of its presence in the flame is the formation of H and O atoms, which constitute with OH a group of the most active intermediate substances formed during the reaction. H₂O₂ was detected in the case of the oxidation of H₂. It is formed as a result of primary chem. processes and, thus, is also an intermediate substance. The concn. of OH in humid mixts. of CO exceeds considerably the equil. concn. of this radical at the temp. of the flame. The rates of $\text{OH} + \text{CO} = \text{CO}_2 + \text{H}$ and the total rate of burning of CO are of the same order of magnitude. The radicals H, CH and SO were detected by the spectroscopic method in the oxidation of CS₂. 25 references. W. R. Henn

Vest. AN SSSR, Ser. Khim.

Lab. Elem. Process, Inst. Chem. Phys. -

AD-564 METALLURGICAL LITERATURE CLASSIFICATION

AD-564 METALLURGICAL LITERATURE CLASSIFICATION

KONDRAT' YEV, V.N.

C A

3

Vest-AN SSSR,
Ser. Fiz

Spectrum of the CS radical. V. N. Kondrat'ev. *Bull. Acad. Sci. U. R. S. S., Ser. phys.* 4: 71-72 (1940) and C. A. 33, 3692; 35, 979. — According to studies of Crawford and Shureliff (C. A. 28, 6033) the main part of the emission spectrum of the CS radical was interpreted as pertaining to the system $A'' \rightarrow X'Z$, and the addnl. bands to $C'Z \rightarrow B'Z$. In the present work, the same bands were found also in the absorption spectrum. The analysis of this spectrum indicated that: (1) C. and S.'s interpretation of $C'Z \rightarrow B'Z$ is not correct, and these bands are due not to the transitions $0' \rightarrow 0'$ and $0' \rightarrow 1'$, but rather to $1 \rightarrow 0'$ and $0' \rightarrow 0'$. (2) Term $B'Z$ must be identified with the abnormal term $X'Z$ of the CS mol. The existence of the absorption spectrum of CS outside of the zone of elec. discharge proves the long life of that radical, several minutes at room temp. and pressure of about 0.01 mm. Hg.

Rokalana Gamow

Inst. Chem. Physics, Leningrad

APPROVED FOR RELEASE: 06/19/2000

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1ST AND 2ND COLUMNS		PROCESSIES AND PROPERTIES INDEX		3RD AND 4TH COLUMNS	
KONDRAT'YEV, V.N.				3	
Photochemical oxidation of carbon disulfide vapors. V. N. Kondrat'yev and A. Yakovleva. J. Exptl. Theoret. Phys. (U. S. S. R.) 10, 1018-42(1940).--At pressures of CS ₂ 16-35 mm. and of O ₂ 40-100 mm., at room temp., the primary process produced by radiation of 2000 Å. is a photodissociation of CS ₂ mols. to CS radicals and meta- stable S atoms. The chief final products are SO, and COS; the latter undergoes further oxidation under the same conditions. F. H. Rathmann				Zhurn. Khim. i Teor. Fiz.	
ASAC 11-A METALLURGICAL LITERATURE CLASSIFICATION					
SUBJECT SYMBOLS		CROSS REF. ONE USE		CLASSIFICATION	
UNCLASSIFIED					

Ed

Investigations of the flame of carbon monoxide and oxygen. VII. The hydroxyl radical in flames of moist carbon monoxide. B. Kondratyev and V. Kondratyeva, *U. R. S. S. J.*, 8(10407) (in English), cf. C. A. 33, 8001^a.—From absorption-spectrum measurements, K. and K. find that the partial pressure of OH in moist 1:1 and 1:3 CO-O₂ flames at 10–50 mm. at 810° ± 0.001 0.003 mm. Since this is approx. 100 times the equilibrium value with respect to H₂O, the OH must be of chain origin and since its rate of formation is the rate of combustion, the authors conclude that it must play an important part in the oxidation mechanism, probably as follows: OH + CO = CO₂ + H. Cf. C. A. 34, 3249. F. H. R.

Lab. Elementary Processes, Inst. Chem. Phys., Leningrad

ASB-55A METALLURGICAL LITERATURE CLASSIFICATION

KONDRAT'EV, V. N.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

ca

The radiation of the low-temperature flame of carbon disulfide. V. Kondrat'ev. *Acta Physicochim. U. R. S. S. 12*, No. 5, 637-46 (1940) (in English); cf. *C. A.* 35, 364. —The $\text{CS}_2\text{-O}_2$ flame radiation is purely chemiluminescent, the ratio of chemiluminescent to thermal radiation for λ 4000 being $10^4:1$. The light output increases to a sharp max. as O_2/CS_2 increases through 2.5-3.5 and then decreases almost to zero for $r > 20$; this indicates a change in the reaction mechanism. The max. corresponds to 1 quantum for 40 CS_2 mols., and decreases to about 1 for 130 on increasing the temp. of the reaction-vessel walls from 290 to 370°. F. H. Rathmann

24

Lab. Elementary Processes, Inst. Chem. Phys. - Leningrad

KONDRAT'YEV, V.N.

"Studies of the Flames of CO and O₂", Zhur. Fiz. Khim., Vol. 14, No 1, 1940.

Lab. of Elementary Processes, Leningrad Inst. of Chemical Physics.

KONDRAT'YEV, V.N.

Some properties of the free CS radical. V. N. Kondrat'ev and E. Magaziner. *J. Phys. Chem.* (U. S. S. R.), 16, 6, 6 (1940).—By means of a spectroscopic study of the CS radical in mixts. with CS₂ or with S and paraffin oil (V. N. C. A. 23, 3072) K. and M. found that the av. life of the radical is independent of the pressure and depends only on the material of the walls and the temp. The temp. coeff. of the recombination reaction $2\text{CS} \rightarrow (\text{CS})_2$ is pos.; the av. life at room temp. is around 10 min., at 100°, 3 min. In the case of glass vessels long exposed to air or washed with KCl; washing with phosphoric acid or heating in vacuo reduces the av. life. At temps. 20–100°, practically no reaction between CS radicals and O₂ takes place. Conclusion: The CS radical has no important part in the development of the reaction chains in the cold CS₂ flame. P. H. Rathmann

1ST AND 2ND SERIES		3RD AND 4TH SERIES	
KONDRAT'YEV, V.N.		2	
<p>Distribution of the CS radical in the low-temperature flame of carbon dioxide. V. N. Kondrat'yev, <i>Phys. Chem. (U. S. S. R.)</i> 14, 287-90 (1960) <i>J. C. A. 38, 807</i>.—The flame of CO_2 mixts. is grayish-green and contains CS when the concn. ratio $\text{O}:\text{CO}_2 = r$ is less than 2.5; it is bluish violet and free from CS at higher r. In the flame of mixts. with r slightly less than 2.5 at less than 4 mm. the CS concn. is max. below the middle of the flame but is considerable also at its tip. At r slightly greater than 2.5 CS concn. is high at the base of the flame but no CS is present in its upper half. The zone of detectable CS concn. is greater than that of the green coloration of the flame because of the diffusion of CS mole. CS concn. is max. in the brightest zone of the flame. CS has a chem., not a thermal, origin. At $r = 2.5$ the mechanism of the combustion changes. CS concn. was detd. by comparing the absorption by the flame of the radiations 2876.6-2876.7 Å., which is, and 2560.7-2562.1 Å., which is not, absorbed by CS. B. C. P. A.</p>			
Elem. Proc. Lab., Leningrad Inst. Chem. Phys.			
ASAC-5LA METALLURGICAL LITERATURE CLASSIFICATION			
FROM SYNDICATE		FROM ROMANY	
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1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
MATERIALS INDEX													PROCESSING AND PROPERTIES INDEX													MATERIALS INDEX													PROCESSING AND PROPERTIES INDEX												
<p>Formation of CS in the photodissociation of CS₂ and COS. V. Kuznetsov and A. Yakovleva. <i>J. Phys. Chem.</i> (U. S. S. R.) 74, 2537-8 (1970). CS radicals were obtained by irradiation of CS₂ or COS in quartz vessels by the light from a hydrogen discharge tube. From the relative contents of CS obtained as measured photometrically, and with the equation $n = (CS_2 - S_0) / S_0$, where S_0 = plate darkening of the band 2370 Å., for various pressures of CS₂ or COS and for different times of irradiation as well as after irradiation ceased, K. and Ya. find that the disappearance of CS obeys the equation $[CS] = [CS]_0 e^{-kt}$ with $k = 2.3 \times 10^{-4}$ and is due to a heterogeneous process involving CS adsorbed on the walls. The coeff. of covering is about 10^{-1} at 10^{-4} (C. A. 35, 626). Indications of a homogeneous reaction leading to CS₂ were given by a band at 2300-2400 Å. F. H. Rathmann.</p>																																																			
<p>ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

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KONDRAT'YEV, V.N.										3									
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Photochemical formation of sulfur monoxide. V. N. Kondrat'ev and A. Yakovleva. <i>J. Phys. Chem.</i> (U. S. S. R.) 14, 850-02(1910).—See C. A. 35, 17027, where the author names are reversed. F. H. Rathmann																			
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION										1ST AND 2ND LETTERS									
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1ST AND 2ND ORDERS		PROCESSES AND PROPERTIES INDEX	
<p><i>Handwritten:</i> 31</p> <p>Radiation of the flame of carbon monoxide and ozone, and the mechanism of this reaction. M. Zatsiorski, V. Kuznetsov, and S. Sadushkova. <i>J. Phys. Chem.</i> (U. S. S. R.) 14, 1521-7 (1940). - When a mixt. of CO and O contg. 3.5% of O₃ passes through a quartz tube at atm. pressure, the decompn. of O₃ becomes noticeable at 120-130° and quant. at 250°, but the percentage of CO oxidized is low (0.2-1%) and decreases when the temp. rises; this neg. temp. coeff. is probably due to the low average O₃ concn. at higher temps. The spectrum of the CO + O₃ flame at 160-250° is identical with that of the CO-air flame except that the former shows no OH bands. The luminosity of the flame increases with temp.; if the mol. collisions extinguishing the luminescence are taken into account, it is calcd. that at 150° 1 in 10⁸ of the CO₂ mols. formed is excited, and at 250° 1 in 20-30. Excited CO₂ mols. can be produced only in the reaction CO + O → CO₂ but ordinary CO₂ is formed also directly from CO and O₃ in a reaction the activation energy of which seems to be about 20 kg.-cal. B. C. P. A.</p>		<p><i>Handwritten:</i> 2</p>	
<p><i>Handwritten:</i> Let's Elem. Proc., Leningrad Inst. Chem. Phys.</p>			
<p>ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>1ST AND 2ND ORDERS</p>		<p>PROCESSES AND PROPERTIES INDEX</p>	

BC

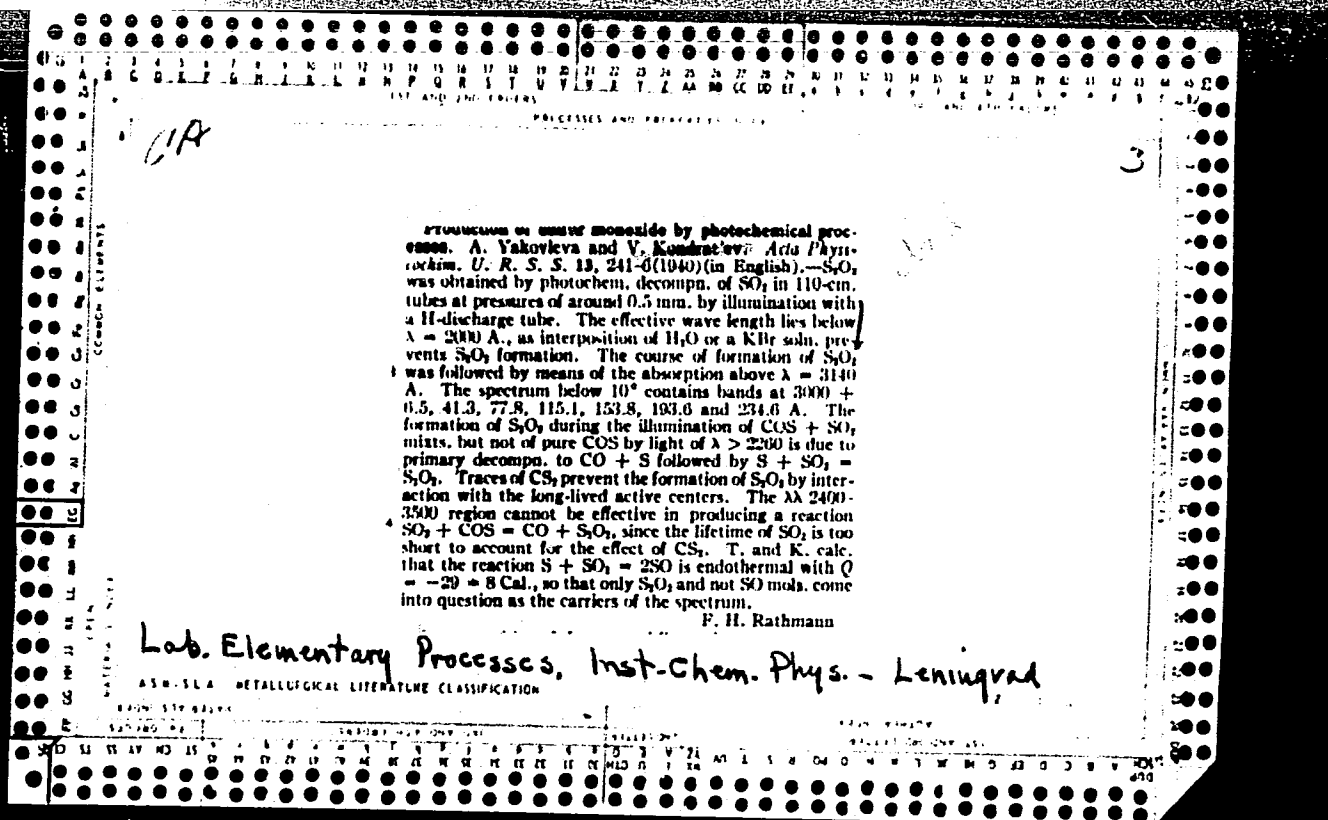
P-1

Sulfur monoxide. By Kondratov and V. Kondratov
U. Spets. Khim. Prizn., 1940, No. 1826—1834].—The com-
position (SO_x) of the gas giving rise to the characteristic
absorption spectrum between 2400 and 2600 Å. is proved by
analysis; it agrees with S_2O_2 . From the emission spectrum
of the real SO its absorption spectrum can be approx-
imate.; it is different from that observed. The coeff. of absorp-
tion of S_2O_2 is independent of temp. between -70° and 80°,
showing that no measurable dissociation to SO takes place.
The spectrum of S_2O_2 appears under conditions which make
formation of SO energetically impossible. This spectrum
cannot be due to S_n mole. since it is too complicated for a
diat. mol.

J. J. H.

A.S.U.-I.A. METALLURGICAL LITERATURE CLASSIFICATION

LITHY SYMBOL	TITLED NIP QNY GRT	ELLIPTONE	EELNOM RQNIW
TOTDNO *A	TOTDNO NIP QNY GRT	ELLIPTONE	EELNOM RQNIW



1ST AND 2ND ORDER										140 AND 4TH ORDER									
PROCESSES AND PROPERTIES WORK																			
2																			
<p>CA KONDRAT'YEV, V.N.</p> <p>Homogeneous solution of carbon monoxide. V. N. Kondrat'ev. <i>Uspekhi Khim.</i> 10, 1-18(1941).--Review Data are given for the conditions of infuscation (temp. pressure and relative concn. of CO, O₂ and H₂O). The homopolymer and the Eber-Lewis mechanism are discussed and the latter is found to be in better agreement with known exptl. data. P. H. Rathmann</p>																			
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3

Radiation of the CO + O₂ flame and the mechanism of
this reaction. V. Kondrat'ev, S. Silnyshkova and M.
Zatsiorskiy. *Acta Physicochim.*, U. R. S. S. 14, 607-74
(1941) (in English). - See C. I. 36, 5118A. F. H. R.

A.S.T.M. METALLURGICAL LITERATURE CLASSIFICATION

2. 176

Thermal decomposition and oxidation of sulfur monoxide. R. Kondratova and V. Kondratov (J. Phys. Chem. Russ., 1961, 18, 721-730).— The decomp. of S_2O_2 at 54–144° is a chain reaction, one of more stages of which take place at the walls of the vessel. The velocity rises exponentially with rising temp., and is independent of $[S_2O_2]$. The activation energy is 30 kg.-cal. In presence of O_2 the process is represented thus: $2S_2O_2 \rightarrow 2SO_2 + S_2$; $S_2 + O_2 \rightarrow 2SO$; $SO + S_2O_2 \rightarrow SO_2 + S_2$; $SO + SO_2 \rightarrow 2SO_2$. R. T.

Zhu-Fu-Khin

B. Abo

14-8-1944

Spontaneous oxidation of anhydrous ammonia. N. M. B. and V. K. (Comm. Acad. Sci. U.S.S.R., 1941, 82, 184).— Measurements, at 2–15 atm. pressure, of the oxidation velocity determined by the rate of disappearance of the absorption spectrum as a function of O_2 pressure in the temp. range 64–144° show that the reaction velocity rises rapidly with O_2 pressure and becomes immeasurable at the crit. pressure. The measured crit. pressures p_c satisfy the equation $p_c = 0.45 \times 10^{-4} T^2$ mm. Hg. If O_2 is forced in at $p > p_c$, there is a slight blue flash lasting a few sec. Near p_c an induction period lasting ~8 min. at the lowest temp. was observed. Results show that the oxidation is a chain reaction and that the

Dokl. AN SSSR

chains have few branches; p_c corresponds to the lower ignition limit. N. M. B.

Photochemical oxidation of carbonyl sulphide. V. N. Kondratyev,
(*Acta Physicochim. U.R.S.S.*, 1942, 18, 272-281). Mixtures of
COS vapour and O_2 were illuminated with light, from a H discharge
tube, of $\lambda = 2300 \text{ \AA}$. Determinations were made from room temp.
to 100° with mixtures of different compositions and pressures (12-48
mm.), and with different intensities of radiation. The mechanism of
the reaction is considered to be: $COS + h\nu \rightarrow CO + S$; $S + COS \rightarrow$
 $CO + S_2$; $S_2 + O_2 \rightarrow SO_2 + S$; $S + SO_2 \rightarrow S_2O_2$; $S_2O_2 \rightarrow (wall) SO_2 +$
 $[S]$. It was found that $[SO_2] = k_2 \sqrt{I_0} e^{-k_1 t} / [COS]$, where k_2
is const., I_0 = intensity of discharge, and t = time of irradiation.
A. J. M.

Lab. Elem. Proc., Inst. Chem. Phys.,

1ST AND 2ND SECTIONS

PROCESS AND PROPERTIES INDEX

3RD AND 4TH SECTIONS

2

Diffusion of hydrogen in quartz. V. Kozlov, J. Zhuravskii, T. Kozlov. *Exptl. Theoret. Phys. (U. S. S. R.)* 18, 59-64(1943). The diffusion of H in quartz was measured at temps. up to 1000° and at pressures from 0.1 to 1.0 atm. The data obtained experimentally satisfy the equation for the rate of diffusion w as a function of pressure P and temp. T : $w = D_0/d^2 = CP^m \exp(-Q/RT)$, where C is a const. The coeff. of diffusion D for H in quartz is about 5×10^{-10} cm.² per sec. at 600°. Within the temp. range studied, diffusion in quartz takes place almost entirely in the form of H₂ mole. The coeff. of H₂ absorbed in the quartz at 600° is only about 0.20% of that in the gas phase. F. H. Rathmann

ASTM-A METALLURGICAL LITERATURE CLASSIFICATION

FROM BOMBY

RELIST ONE ONLY SEE

RELIST ONE ONLY SEE

Reaction of water-gas conversion in quartz vessels. V. Kon-
dratsev and M. Ziskin (*Acta Physicochem. U.R.S.S.*, 1943, 18, 197—
209).—The rate of reaction of $\text{CO}_2\text{-H}_2$ mixtures on passing through
heated SiO_2 tubes is not governed by the reaction time but by the
surface area of the reaction tube, a large area having an inhibiting
effect. The amount of H_2 transformed into H_2O (y) increases with
temp. according to an exponential law, but equilibrium is far from
being attained at 800° . A reaction scheme based on the assumption
of catalytic activity on the part of O_2 is proposed, and it follows
from calculations that $y_{\text{exp.}} \propto e^{-(E_{\text{III}} - E_1)/RT}$, where E_{III} and E_1
are the respective activation energies of stages $\text{H} + \text{CO}_2 \rightarrow \text{CO} +$
 OH and $\text{O}_2 + \text{H}_2 \rightarrow 2\text{OH}$.
C. R. H.

KONDRAT' YEV, V.N.										PROCESSING AND PROPERTIES									
<p><i>[Handwritten signature]</i></p>										<p><i>[Handwritten signature]</i></p>									
<p>Spectroscopic study of gaseous chemical reaction. V. N. Kondrat'ev. <i>Akad. Nauk S.S.S.R., Inst. Khim. Fiz. Moscow 1964, 80 pp.</i>—Review of the application of spectroscopic methods to the study of various gas reac- tions, including the oxidations of H, CO, C₂H₂, and vari- ous S compounds. 82 references. G. M. Kosolapoff</p>										<p><i>[Handwritten signature]</i></p>									
<p>ASB-32A METALLURGICAL LITERATURE CLASSIFICATION</p>										<p>6-27-64</p>									
<p>13041 17-03-17-0</p>										<p>13041 03-04-17-0</p>									
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140 AND 4TH CROSS

PROCESSING AND PROPERTY INDEX

V.N. Zhur.Fiz.Khim. 2

KONDRAI YEV, V.N.

Combustion of CO mixtures in quartz vessels. V.N. Zhur. *J. Phys. Chem. (U.S.S.R.)* 8, 110-14 (1964).—When an oxidant, mixt. of O_2 and CO contg. a little H_2O or H_2O and H_2 is passed through a quartz tube at 400-700°, the percentage ρ of CO oxidized is low (often less than 1%) and independent of the length of the tube (15-50 cm.). When the mixt. is passed through 2 tubes, the amount of which is kept at 700°, ρ in the first tube increases with its temp. (400-500°), but ρ in the second tube remains almost constant. The reduction of ρ in the second tube is not due to production of a poison in the first, as no poison could be broken out between the 2 tubes. It is not due to loss of H_2 through heated quartz, as this diffusion was measured and found too small. It must be due to trapping of water mole. in the vessel, on addn. of water to the mixt. between the tubes raises ρ in the second tube; about 70 mole. of CO_2 are produced for 1 H_2O . The trapping is not a simple adsorption, as it does not occur in the absence of combustion. I. I. Biberman

ASR-3LA METALLURGICAL LITERATURE CLASSIFICATION

180M BOMIV

180M BOMIV

1ST AND 2ND DEGREE										3RD AND 4TH DEGREE									
PROCESS AND PROPERTIES INDEX																			
<p>CA</p> <p>Mechanism of oxidation of sulfur monoxide. B. Kondrat'ev and V. Kondrat'ev. J. Phys. Chem. (U.S.S.R.) 18, 102-103 (1944); cf. C.A. 37, 820. Oxidation of SO by an excess of O₂ gives S (about 60% at all temps.), SO₂ (25-10% at 85-140°), and SO₃ (15-30% at 85-140°). The min. pressure of ignition is 84 mm. at 22° and 2 mm. at 180°. At lower temp. an induction period is observed. Often a glow is seen. A mechanism of reaction is postulated; SO₂ is supposed to retard the oxidation. B.A.</p> <p>2</p>																			
A12-51A METALLURGICAL LITERATURE CLASSIFICATION																			
1ST DEGREE										2ND DEGREE									
1ST DEGREE										2ND DEGREE									

BC

Combustion of oxygen-carbon monoxide mixtures in quartz vessels.
V. N. Kondratyev (*J. Phys. Chem. Russ.*, 1944, 18, 110-114).—
When mixtures of O_2 and CO burn in a quartz tube in presence of
 H_2O as catalyst, H_2O is consumed, probably adsorbed on the walls.
Therefore the yield of CO_2 cannot be raised by increasing the time of
contact of O_2 and CO, but is improved by adding H_2O to the ex-
hausted mixture; 1 mol. of H_2O added causes formation of 70 mols.
of CO_2 (at 600°).
J. J. B.

A-18

ASB-51.4 METALLURGICAL LITERATURE CLASSIFICATION

1334 82474

01111 041 041 111

BC

TEMPERATURE-DEPENDENCE OF THE LOWER LIMIT OF IGNITION OF HYDROGEN
FROM EXPERIMENTAL MEASUREMENTS OF HYDROGEN. V. KONDRAKOV
(Compt. rend. Acad. Sci. U.R.S.S., 1944, 64, 20-25).—Avramenko's
measurements of absorption by OH in H_2 flames at low pressure
(A., 1944, I, 178) are used to derive an expression for the lower limit
 ϕ_0 of ignition of H_2 in agreement with Nalbandjan's experimental
data (Thesis, 1942); the val. of E_1 in the expression $\phi_0 = a_0 E_1 / RT$
is computed as 11,000 g.-cal. L. J. J.

Doc. AN SSSR

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS		PROCESSOR AND PROPERTIES INDEX		1ST AND 2ND ORDERS	
CA		KONDRA'T'YEV, V.N.		Zhu. Fiz. Khim. 2	
<p>Heat decomposition of hydrogen peroxide vapor. E. Kondrat'ev and V. N. Kondrat'ev. <i>J. Phys. Chem. (U.S.S.R.)</i> 19, 178-84 (1945). Moist air contg. 0.01-0.4 mm. Hg of H_2O_2 is passed through a glass tube. At room temp. there is no decompos. If the last liquid used to rinse the tube has been water or HNO_3; if $Cu(NO_3)_2$ or KCl was used, a decompos. takes place. At 150° H_2O_2 is decompd. also in clean tubes. At a const. rate of air current the surviving amt. of H_2O_2 is nearly independent of its original vapor pressure. That is considered to show that the reaction is bimol. The energy of activation calcd. from the temp. coeff. between 23° and 175° is 7.6-9.5 kg.-cal. per mole.</p> <p>J. J. Bikerman</p>					
ASB-51A METALLURGICAL LITERATURE CLASSIFICATION					
REGION 1		REGION 2		REGION 3	
REGION 4		REGION 5		REGION 6	

117 AND 118 CROITS		PRINCIPLES AND PROPERTIES INDEX		119 AND 120 CROITS	
<p>1261. MEASUREMENT OF THE IGNITION LIMITS BY THE JET METHOD. Kondratiev, V. N. (Compt. rend. acad. sci. U.S.S.R., 1946, 49, 116-118). Determination of the pressure limits of ignition in a flow of combustible gas by the appearance of flame is not always reliable because close to the lower ignition limit radiation from certain flames is very small. The author describes a more reliable method, based on pressure measurements, which may be applied to reactions involving a volume change. The temperature of the gas mixture passing through the reaction vessel is gradually raised and the pressure remains constant until the ignition temperature corresponding to this pressure is reached after which it rapidly falls off.</p> <p style="text-align: right;">B.C.U.R.A.</p>					
A.S. 11A METALLURGICAL LITERATURE CLASSIFICATION					
GROUP		SUBGROUP		SIGN. NUMBER	
117 AND 118 CROITS		119 AND 120 CROITS		119 AND 120 CROITS	

KONDRATIEV, V. N.

PA 4T65

USSR/Physical Chemistry - Combustion
Carbon monoxide

1945

"Shift in the Ignition Limits for Carbon Monoxide with
Small Admixtures of Hydrogen," V. N. Kondratiev,
4 pp

"CR Acad Sci" Vol XLIX, No 1

A mathematical investigation, based on the mechanics
of carbon-monoxide combustion, of the effect previous-
ly reported by M. Ashkinazi of the Institute of Chemi-
cal Physics, where admixture of a few hundredths of a
percent of hydrogen lowered the lower limit and raised
the upper limit of ignition of an oxygen mixture of
carbon monoxide.

4T65

COMMON ELEMENTS		PROCESSES AND PROPERTIES INDEX		1ST AND 2ND CROSS																																																																																																					
KOND RAT YEV, V.N.				21																																																																																																					
<p><i>ca</i></p> <p>Theory of combustion of hydrocarbons. V. N. Kondrat'ev. <i>J. Phys. Chem. (U.S.S.R.)</i> 20, 345-54 (1946). -- The main reactions in the combustion of hydrocarbons A are $OH + A = H_2O + R_1$, $R_1 + O_2 = O + \dots$, $R_1 + O_2 = R_2 + \dots$, $R_2 + A = R_1H + R_1$, $O + A = OH + R_1$, and $R + wall \rightarrow adsorbed R$. R is an indefinite, and R_1, R_2, and R_3 are definite, radicals. The chains are broken by adsorption of radicals on the wall of the reaction vessel; as very active radicals are likely to react before reaching the wall, the adsorption and deactivation affect chiefly less-active radicals. OH, O, and H are consumed rapidly and are not markedly adsorbed; their concn. in the vol. of hydrocarbon flame is nearly stationary. The theory predicts an approximate proportionality between the av. concn. of OH in the flame and the av. rate of reaction. Avramenko's expts. (<i>C.A.</i> 37, 6529) on combustion of C_4H_{10} agree with this prediction. The relation between the low ignition limit, gas compn., and temp., when detd., will make possible a more thorough test of the theory. J. J. Bikerman</p> <p><i>Zhurn-Fiz. Khim.</i></p>																																																																																																									
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1ST AND 2ND ORDERS										PROCESSES AND PROPERTIES INDEX										100 AND 4TH ORDERS									
<div style="position: relative;"> <div style="position: absolute; top: 10px; left: 10px; font-size: 2em; font-weight: bold;">C</div> <div style="position: absolute; top: 20px; left: 10px; font-weight: bold;">KONDRAT'YEV, V. N.</div> <div style="position: absolute; top: 20px; left: 300px;"> <p>New trends in the development of photochemistry. (The 50th birthday of A. N. Terebin). V. N. Kondrat'ev. <i>J. Phys. Chem. (U.S.S.R.)</i> 20, 463-8 (1946). - A review of T's work is given.</p> </div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em; font-weight: bold;">3</div> </div>																													
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KONDRAT'EV, V. N.

Chemical mechanism of the reaction of hydrogen combustion. V. N. Kondrat'ev (Inst. Chem. Phys., Acad. Sci. U.S.S.R., Moscow). *J. Phys. Chem. (U.S.S.R.)* 20, 1231-7 (1946) (in Russian).—A mechanism of combustion of H₂, derived from the kinetics of this reaction, was confirmed experimentally by an approx. detn. of the contents of OH (cf. *C.A.* 31, 6523³) and of H atoms (cf. *C.A.* 40, 5613³; 41, 1532¹). J. J. Birkman

KONDRAT'YEV, V. I.

14T 8NC 140 14045K3

PROCESSES AND PROPERTIES INDEX

Catalytic recombination of active centers and its application for determining their concentration in the reaction zone. E. I. Konstant'eva and V. N. Konstant'ev, *Zh. Fiz. Khim.*, 1958, 32, 2294 (1958) (USSR, Moscow). *Phys. Chem. USSR*, 1958, 32, 2294 (1958) (USSR, Moscow). C.A. 40, 5613²; 41, 1532². The temp. increase of a H_2O molybdeum coated with ZnO Cr_2O_3 and kept in a H_2O flame shows that the rate of adsorption of H atoms by the walls is almost independent of the temp. between 800° and 1000° abs. I. I. Rukerman

SCIENTIFIC AMERICAN

KONDRATIEV, V. *N.*

USSR/Chemistry - Hydrogen, Flames of
Chemistry - Hydrogen, Atomic *ye I.*

Jul/Aug 1946

"Hydrogen Atoms in Hydrogen Flames," H. Kondratieva, V. Kondratiev, Inst Chem Phys,
Acad Sci USSR, Moscow, 12 pp

"Acta Physicochimica URSS" Vol XXI, No 4

Measurements of H atom in hydrogen flames burning in $4H_2+O_2$, $2H_2+O_2$, H_2+O_2 , H_2+4O_2
mixtures by thermoelectric probe method. Results agree quantitatively with assumed
mechanism of hydrogen combustion. Received 3 Dec 1945.

PA 5211

1ST AND 2ND EDITIONS															3RD AND 4TH EDITIONS														
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COMMON ELEMENTS										PROCESSES AND PROPERTIES INDEX										COMMON VARIABLES INDEX									
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2

Chun. Fiz. Khim.

Active centers in the combustion of carbon monoxide.
 B. Kondrat'eva and V. Kamensk'ev. *J. Phys. Chem.*
 (U.S.S.R.) 21, 769-76(1947)(in Russian); cf. preceding
 abstr.—The coated thermocouple is hotter than an un-
 coated couple in burning moist $\text{CO} + \text{O}_2$ mixts. When
 the pressure is so small that no ignition takes place, $\Delta T =$
 0 . ΔT is proportional to the rate of combustion when
 the temp. was varied between 610 and 717°, the pressure
 between 13 and 23 mm. Hg, and the rate of gas flow be-
 tween 0.55 and 3.55 cc./sec. The highest ΔT was 60°.
 If recombination of H atoms gives rise to ΔT , their partial
 pressure was about 0.1 mm. Hg. J. J. Bikerman

METALLURGICAL LITERATURE CLASSIFICATION										AUTHOR INDEX										SUBJECT INDEX									
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z										A B C D E F G H I J K L M N O P Q R S T U V W X Y Z										A B C D E F G H I J K L M N O P Q R S T U V W X Y Z									
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RECORDS 1-4, 4-10.

USSR/Physics

Mar/Apr 1948

Atomic Structure

Molecular Structures

"Review of 'Structure of Atoms and Molecules' by V. N. Kondrat'yev," M. V. Vol'kenshteyn, 2½ pp

"Izvest Akad Nauk SSSR, Otd Khim. Nauk" No 2

This book meets requirements of growing interest by Soviet reading public in field of structure of matter. Book is too basic and general to be used as a text for scientific students or technicians. Published in Moscow and Leningrad 1946.

63T92

19

The Mechanism of Cold-Flame Combustion. (In Russian.) V. Kondrat'ev, L. Kartilova, and E. Kondrat'ev. Zhurnal Fizicheskoi Khimii (Journal of Physical Chemistry), v. 22, May 1948, p. 581-584.

Investigates the above by the thermoelectric method. On the basis of tabulated and charted data, it is indicated that the H atom, even if present in the zone of the cold flame, does not have as great an importance as in the mechanism of hot-flame combustion.

Inst. Chem. Phys. - AS USSR

AS - SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CROSS		3RD AND 4TH CROSS	
PROCESSES AND PROPERTIES INDEX			
<p>535. Interaction between Neutrons and Nuclei by V N Kondratyev <u>Uspekhi</u> <u>Fiz Nauk</u> 34 169-261 (1948) Feb (In Russian)</p> <p>In the "Introduction" neutron reactions are surveyed and the conception of "cross section" is defined. Chapter I, "Theory of nuclear reactions", gives Weiskopf's deduction of dispersion formulas for cross sections of nuclear processes, based on wave-mechanical considerations, and a discussion of Weiskopf and Brueckner's formula covering the cases of interaction between rapid neutrons and heavy nuclei. Chapter II, "Methods for measuring cross sections." Chapter III, "Experimental data." Survey of characteristic features of the cross sections of different elements, in their relation to the energy of the acting neutrons. This is followed by an extensive table for all elements, giving scattering and absorption cross sections, sources of neutrons, and their energies. (93 pages of which 61 is a table of cross sections).</p>			
ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION			
1ST AND 2ND CROSS		3RD AND 4TH CROSS	
1ST AND 2ND CROSS		3RD AND 4TH CROSS	

KONDRAT'YEV, V. N.

PA 37/49T11

USSR/Chemistry - Combustion
Chemistry - Spectroscopy

Nov 48

"The Division of Active Centers of Reaction in the
Combustion Zone," V. N. Kondrat'yev, 8 pp

"Uspekhi Fiz Nauk" Vol XXXVI, No 3

Describes method permitting experimental observation
of chemical processes in flames by using system in-
volving absorption spectroscope. Refers to several
articles author has had published. Includes various
graphs of data obtained by mathematical formulas
which are explained.

37/49T11

1ST AND 2ND DOD (8)		1ST AND 2ND DOD (8)	
PROCESSING AND PROPERTIES INDEX			
S KONDRAT YEV, V.N.		18	
<p>CONCERNING THE TABLE RELATING TO THE FOLDI APPARATUS. V.N. Kondratyev. (Zavodskaya Laboratoriya, 1949, vol. 15, Apr., pp. 472-473). (in Russian) The calculation of results using the tables provided with the Foldi hardness tester is shown to give, in some cases, errors of 20%.—S.k.</p>			
ASUS SLA METALLURGICAL LITERATURE CLASSIFICATION			
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1ST AND 2ND COBERT										3RD AND 4TH COBERT									
PROCESSES AND PROPERTIES MODE																			
<p>KONDRAT'YEV, V.N.</p>										<p>8</p>									
<p>756 Energy Levels of Atomic Nuclei. V.N. Kondrat'ev. <u>Uspekhi Fiz. Nauk</u> 38, 153-221(1940)(in Russian). In this review of literature on energy levels of atomic nuclei (250 references), a short introduction shows the inadequacy of present-day theories in their attempt to account for the quantitative aspects of the problem; the following section is an enumeration of principles of different experimental meth- ods leading to the determination of energy levels; the work ends with an extensive table of energy levels of various nuclei, compiled from data published before January 1, 1940.</p>																			
ASM-AIA METALLURGICAL LITERATURE CLASSIFICATION																			
FROM STRUCTURE										FROM COMPOSITION									
1ST AND 2ND COBERT										3RD AND 4TH COBERT									

KONDRAT'EV, V. N.

1220. Kondrat'ev, G. M., Application of the theory of regular cooling of a two-component sphere to the determination of heat conductivity of poor heat conductors (method, "sphere in a sphere") (in Russian), *Izv. Akad. Nauk SSSR Otd. tekhn. Nauk* no. 4, 536-542, Apr. 1950.

Bicalorimeter is a spherical body formed by a spherical kernel of metal which is surrounded by a concentric layer of poor heat conductor (thermic insulator). Mathematical theory of heat conduction in such solids is well known. If one can calculate with an infinite film-transfer factor between the kernel and the insulating layer, the theory gives simple results suitable for experimental determination of thermal conductivity of the insulator.

The paper deals with two modifications of the "sphere-in-sphere" method. Both of them are very intuitive and can be accomplished without expensive and complicated mechanism. For this reason, reviewer recommends them to physicists and engineers. The second modification especially is very important for the following two advantages: (a) The determination of the thermal conductivity of the insulator can be accomplished without knowledge of its thermometric conductivity. (b) The dimensions of the bicalorimeter can be chosen in such a way that results of sufficient physical and technical exactness can be obtained with even an approximate knowledge (or only with an estimate) of the specific heat of the insulator. V. Vodicka, Czechoslovakia

712.1
12. Ak. Nauk SSSR,
Otdel. Tekh. Nauk

B KONDRAT' YEY, V.-V.

27

4291° Radicals in Chain Reactions. (In Russian.) V. V. Vorovichii and V. N. Kondrat'yev. *Doklady Akademii Nauk SSSR* (Progress in Chemistry), v. 19, Nov.-Dec. 1950, p. 673-696.
On the basis of the literature, the above was studied from the point of view of classification of elementary reactions according to their role in the chain process. 45 ref.

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

1950 STANBURY

1951 MAR 1952 APR 1953 MAY 1954 JUN 1955 JUL 1956 AUG 1957 SEP 1958 OCT 1959 NOV 1960 DEC 1961 JAN 1962 FEB 1963 MAR 1964 APR 1965 MAY 1966 JUN 1967 JUL 1968 AUG 1969 SEP 1970 OCT 1971 NOV 1972 DEC 1973 JAN 1974 FEB 1975 MAR 1976 APR 1977 MAY 1978 JUN 1979 JUL 1980 AUG 1981 SEP 1982 OCT 1983 NOV 1984 DEC 1985 JAN 1986 FEB 1987 MAR 1988 APR 1989 MAY 1990 JUN 1991 JUL 1992 AUG 1993 SEP 1994 OCT 1995 NOV 1996 DEC 1997 JAN 1998 FEB 1999 MAR 2000 APR 2001 MAY 2002 JUN 2003 JUL 2004 AUG 2005 SEP 2006 OCT 2007 NOV 2008 DEC 2009 JAN 2010 FEB 2011 MAR 2012 APR 2013 MAY 2014 JUN 2015 JUL 2016 AUG 2017 SEP 2018 OCT 2019 NOV 2020 DEC 2021 JAN 2022 FEB 2023 MAR 2024 APR 2025 MAY 2026 JUN 2027 JUL 2028 AUG 2029 SEP 2030 OCT 2031 NOV 2032 DEC 2033 JAN 2034 FEB 2035 MAR 2036 APR 2037 MAY 2038 JUN 2039 JUL 2040 AUG 2041 SEP 2042 OCT 2043 NOV 2044 DEC 2045 JAN 2046 FEB 2047 MAR 2048 APR 2049 MAY 2050 JUN 2051 JUL 2052 AUG 2053 SEP 2054 OCT 2055 NOV 2056 DEC 2057 JAN 2058 FEB 2059 MAR 2060 APR 2061 MAY 2062 JUN 2063 JUL 2064 AUG 2065 SEP 2066 OCT 2067 NOV 2068 DEC 2069 JAN 2070 FEB 2071 MAR 2072 APR 2073 MAY 2074 JUN 2075 JUL 2076 AUG 2077 SEP 2078 OCT 2079 NOV 2080 DEC 2081 JAN 2082 FEB 2083 MAR 2084 APR 2085 MAY 2086 JUN 2087 JUL 2088 AUG 2089 SEP 2090 OCT 2091 NOV 2092 DEC 2093 JAN 2094 FEB 2095 MAR 2096 APR 2097 MAY 2098 JUN 2099 JUL 2100 AUG 2101 SEP 2102 OCT 2103 NOV 2104 DEC 2105 JAN 2106 FEB 2107 MAR 2108 APR 2109 MAY 2110 JUN 2111 JUL 2112 AUG 2113 SEP 2114 OCT 2115 NOV 2116 DEC 2117 JAN 2118 FEB 2119 MAR 2120 APR 2121 MAY 2122 JUN 2123 JUL 2124 AUG 2125 SEP 2126 OCT 2127 NOV 2128 DEC 2129 JAN 2130 FEB 2131 MAR 2132 APR 2133 MAY 2134 JUN 2135 JUL 2136 AUG 2137 SEP 2138 OCT 2139 NOV 2140 DEC 2141 JAN 2142 FEB 2143 MAR 2144 APR 2145 MAY 2146 JUN 2147 JUL 2148 AUG 2149 SEP 2150 OCT 2151 NOV 2152 DEC 2153 JAN 2154 FEB 2155 MAR 2156 APR 2157 MAY 2158 JUN 2159 JUL 2160 AUG 2161 SEP 2162 OCT 2163 NOV 2164 DEC 2165 JAN 2166 FEB 2167 MAR 2168 APR 2169 MAY 2170 JUN 2171 JUL 2172 AUG 2173 SEP 2174 OCT 2175 NOV 2176 DEC 2177 JAN 2178 FEB 2179 MAR 2180 APR 2181 MAY 2182 JUN 2183 JUL 2184 AUG 2185 SEP 2186 OCT 2187 NOV 2188 DEC 2189 JAN 2190 FEB 2191 MAR 2192 APR 2193 MAY 2194 JUN 2195 JUL 2196 AUG 2197 SEP 2198 OCT 2199 NOV 2200 DEC 2201 JAN 2202 FEB 2203 MAR 2204 APR 2205 MAY 2206 JUN 2207 JUL 2208 AUG 2209 SEP 2210 OCT 2211 NOV 2212 DEC 2213 JAN 2214 FEB 2215 MAR 2216 APR 2217 MAY 2218 JUN 2219 JUL 2220 AUG 2221 SEP 2222 OCT 2223 NOV 2224 DEC 2225 JAN 2226 FEB 2227 MAR 2228 APR 2229 MAY 2230 JUN 2231 JUL 2232 AUG 2233 SEP 2234 OCT 2235 NOV 2236 DEC 2237 JAN 2238 FEB 2239 MAR 2240 APR 2241 MAY 2242 JUN 2243 JUL 2244 AUG 2245 SEP 2246 OCT 2247 NOV 2248 DEC 2249 JAN 2250 FEB 2251 MAR 2252 APR 2253 MAY 2254 JUN 2255 JUL 2256 AUG 2257 SEP 2258 OCT 2259 NOV 2260 DEC 2261 JAN 2262 FEB 2263 MAR 2264 APR 2265 MAY 2266 JUN 2267 JUL 2268 AUG 2269 SEP 2270 OCT 2271 NOV 2272 DEC 2273 JAN 2274 FEB 2275 MAR 2276 APR 2277 MAY 2278 JUN 2279 JUL 2280 AUG 2281 SEP 2282 OCT 2283 NOV 2284 DEC 2285 JAN 2286 FEB 2287 MAR 2288 APR 2289 MAY 2290 JUN 2291 JUL 2292 AUG 2293 SEP 2294 OCT 2295 NOV 2296 DEC 2297 JAN 2298 FEB 2299 MAR 2300 APR 2301 MAY 2302 JUN 2303 JUL 2304 AUG 2305 SEP 2306 OCT 2307 NOV 2308 DEC 2309 JAN 2310 FEB 2311 MAR 2312 APR 2313 MAY 2314 JUN 2315 JUL 2316 AUG 2317 SEP 2318 OCT 2319 NOV 2320 DEC 2321 JAN 2322 FEB 2323 MAR 2324 APR 2325 MAY 2326 JUN 2327 JUL 2328 AUG 2329 SEP 2330 OCT 2331 NOV 2332 DEC 2333 JAN 2334 FEB 2335 MAR 2336 APR 2337 MAY 2338 JUN 2339 JUL 2340 AUG 2341 SEP 2342 OCT 2343 NOV 2344 DEC 2345 JAN 2346 FEB 2347 MAR 2348 APR 2349 MAY 2350 JUN 2351 JUL 2352 AUG 2353 SEP 2354 OCT 2355 NOV 2356 DEC 2357 JAN 2358 FEB 2359 MAR 2360 APR 2361 MAY 2362 JUN 2363 JUL 2364 AUG 2365 SEP 2366 OCT 2367 NOV 2368 DEC 2369 JAN 2370 FEB 2371 MAR 2372 APR 2373 MAY 2374 JUN 2375 JUL 2376 AUG 2377 SEP 2378 OCT 2379 NOV 2380 DEC 2381 JAN 2382 FEB 2383 MAR 2384 APR 2385 MAY 2386 JUN 2387 JUL 2388 AUG 2389 SEP 2390 OCT 2391 NOV 2392 DEC 2393 JAN 2394 FEB 2395 MAR 2396 APR 2397 MAY 2398 JUN 2399 JUL 2400 AUG 2401 SEP 2402 OCT 2403 NOV 2404 DEC 2405 JAN 2406 FEB 2407 MAR 2408 APR 2409 MAY 2410 JUN 2411 JUL 2412 AUG 2413 SEP 2414 OCT 2415 NOV 2416 DEC 2417 JAN 2418 FEB 2419 MAR 2420 APR 2421 MAY 2422 JUN 2423 JUL 2424 AUG 2425 SEP 2426 OCT 2427 NOV 2428 DEC 2429 JAN 2430 FEB 2431 MAR 2432 APR 2433 MAY 2434 JUN 2435 JUL 2436 AUG 2437 SEP 2438 OCT 2439 NOV 2440 DEC 2441 JAN 2442 FEB 2443 MAR 2444 APR 2445 MAY 2446 JUN 2447 JUL 2448 AUG 2449 SEP 2450 OCT 2451 NOV 2452 DEC 2453 JAN 2454 FEB 2455 MAR 2456 APR 2457 MAY 2458 JUN 2459 JUL 2460 AUG 2461 SEP 2462 OCT 2463 NOV 2464 DEC 2465 JAN 2466 FEB 2467 MAR 2468 APR 2469 MAY 2470 JUN 2471 JUL 2472 AUG 2473 SEP 2474 OCT 2475 NOV 2476 DEC 2477 JAN 2478 FEB 2479 MAR 2480 APR 2481 MAY 2482 JUN 2483 JUL 2484 AUG 2485 SEP 2486 OCT 2487 NOV 2488 DEC 2489 JAN 2490 FEB 2491 MAR 2492 APR 2493 MAY 2494 JUN 2495 JUL 2496 AUG 2497 SEP 2498 OCT 2499 NOV 2500 DEC 2501 JAN 2502 FEB 2503 MAR 2504 APR 2505 MAY 2506 JUN 2507 JUL 2508 AUG 2509 SEP 2510 OCT 2511 NOV 2512 DEC 2513 JAN 2514 FEB 2515 MAR 2516 APR 2517 MAY 2518 JUN 2519 JUL 2520 AUG 2521 SEP 2522 OCT 2523 NOV 2524 DEC 2525 JAN 2526 FEB 2527 MAR 2528 APR 2529 MAY 2530 JUN 2531 JUL 2532 AUG 2533 SEP 2534 OCT 2535 NOV 2536 DEC 2537 JAN 2538 FEB 2539 MAR 2540 APR 2541 MAY 2542 JUN 2543 JUL 2544 AUG 2545 SEP 2546 OCT 2547 NOV 2548 DEC 2549 JAN 2550 FEB 2551 MAR 2552 APR 2553 MAY 2554 JUN 2555 JUL 2556 AUG 2557 SEP 2558 OCT 2559 NOV 2560 DEC 2561 JAN 2562 FEB 2563 MAR 2564 APR 2565 MAY 2566 JUN 2567 JUL 2568 AUG 2569 SEP 2570 OCT 2571 NOV 2572 DEC 2573 JAN 2574 FEB 2575 MAR 2576 APR 2577 MAY 2578 JUN 2579 JUL 2580 AUG 2581 SEP 2582 OCT 2583 NOV 2584 DEC 2585 JAN 2586 FEB 2587 MAR 2588 APR 2589 MAY 2590 JUN 2591 JUL 2592 AUG 2593 SEP 2594 OCT 2595 NOV 2596 DEC 2597 JAN 2598 FEB 2599 MAR 2600 APR 2601 MAY 26

KONDRA'TIYEV, V. N.

185T8

USSR/Chemistry - Combustion

Mar 51

"Measurement of the Concentration of Oxygen Atoms in Flames With the Aid of NO," L. V. Karmilova, V. N. Kondrat'yev, Inst Phys Chem, Acad Sci USSR, Moscow

"Zhur Fiz Khim" Vol XXV, No 3, pp 312-322

Measurement of intensity of yellow-green NO₂ incandescence extends use of Gaydon's method for qual detn of at 0 in flames with NO to quant detn of its concn. According to this method, concn of at 0 in hot CO flames is of same order as equil concn (at flame temps > 2,600° abs). Since introduction of NO changes

185T8

USSR/Chemistry - Combustion (Contd)

Mar 51

combustion conditions, measured concn must be referred to changed conditions.

185T8

KONDRAT'YEV, V.N., chlen-korrespondent.

[Structure and chemical properties of molecules] Stroenie i khimicheskie
svoistva molekul. Moskva, Izd-vo "Znanie," 1953. 31 p. (MLBA 6:10)

(Molecul)

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KONDRAT'YEV, V.N., akademik.

Problems of chemical kinetics. Vest.AN SSSR 23 no.11:49-64 N '53.
(MIRA 6:12)
(Chemistry, Physical and theoretical)

KONDRAT'YEV V.N.

TERENIN, A.N., akademik; KONDRAT'YEV, V.N., akademik; KHUNYANTS, I.L., akademik; KABACHNIK, M.I.; SOKOLOV, N.D., doktor fiz.-mat. nauk; REUTOV, O.A., doktor khimicheskikh nauk; MOSKVICHEVA, N.I., tekhnicheskii redaktor

[Status of the theory of chemical structure in organic chemistry]
Sostoianie teorii khimicheskogo stroeniia v organicheskoi khimii.
Moskva, Izd-vo Akademii nauk SSSR, 1954. 122 p. [Microfilm]
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SSSR. Otdeleniye khimicheskikh nauk
(Chemical structure) (Chemistry, Organic)

KONDRAT'YEV V.N.

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000824220002-1

"Application of Tracer Atoms in the Study of the Process of Chemical Reactions," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955

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[Tagged atom method in the study of the mechanism of chemical reactions] Primenenie mechenykh atomov k izucheniu mekhanizma khimicheskikh reaktsii. Moskva, 1955. 19 p. (MIRA 14:6)
(Chemical reactions, Rate of) (Radioactive tracers)

KONDRAT'YEV, V.N., akademik, redaktor; EMANUEL', N.M., doktor khimicheskikh nauk, redaktor; SHEVCHENKO, G.N., tekhnicheskii redaktor.

[Problems of chemical kinetics, catalysis and reactivity] Voprosy khimicheskoi kinetiki, kataliza i reaktsionnoi sposobnosti; doklady k Vsesoiuznomu soveshchaniyu po khimicheskoi kinetike i reaktsionnoi sposobnosti. Moskva, Izd-vo Akademii nauk SSSR, 1955. 884 p. [Microfilm] (MIRA 8:5)

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